NON-FEDERAL HEALTH RESEARCH FACILITIES

UNIVERSITY
OF MICHIGAN
MAY 25 1956
MAIN
READING ROOM

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

EIGHTY-FOURTH CONGRESS

SECOND SESSION

ON

H. R. 3459 and H. R. 4114

BILLS TO PROVIDE ASSISTANCE TO CERTAIN NON-FEDERAL INSTITUTIONS FOR CONSTRUCTION OF FACILITIES FOR RESEARCH IN CRIPPLING AND KILLING DISEASES SUCH AS CANCER, HEART DISEASE, POLIOMYELITIS, NERVOUS DISORDERS, MENTAL ILLNESS, ARTHRITIS AND RHEUMATISM, BLINDNESS, CEREBRAL PALSY, AND MUSCULAR DYSTROPHY, AND FOR OTHER PURPOSES

AND

S. 849

AN ACT TO PROVIDE ASSISTANCE TO CERTAIN NON-FEDERAL INSTITUTIONS FOR CONSTRUCTION OF FACILITIES FOR RESEARCH IN CRIPPLING AND KILLING DISEASES SUCH AS CANCER, HEART DISEASE, POLIOMYELITIS, NERVOUS DISORDERS, MENTAL ILLNESS, ARTHRITIS AND RHEUMATISM, BLINDNESS, CEREBRAL PALSY, TUBERCULOSIS, MULTIPLE SCLEROSIS, EPILEPSY, CYSTIC FIBROSIS, AND MUSCULAR DYSTROPHY, AND FOR OTHER PURPOSES

APRIL 11, 12, 13, AND 18, 1956

Printed for the use of the Committee on Interstate and Foreign Commerce

UNITED STATES
GOVERNMENT PRINTING OFFICE
76924 WASHINGTON : 1956

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

J. PERCY PRIEST, Tennessee, *Chairman*

OREN HARRIS, Arkansas
ARTHUR G. KLEIN, New York
WILLIAM T. GRANAHAN, Pennsylvania
F. ERTEL CARLYLE, North Carolina
JOHN BELL WILLIAMS, Mississippi
PETER F. MACK, JR., Illinois
KENNETH A. ROBERTS, Alabama
MORGAN M. MOULDER, Missouri
HARLEY O. STAGGERS, West Virginia
ISIDORE DOLLINGER, New York
WALTER ROGERS, Texas
MARTIN DIES, Texas
SAMUEL N. FRIEDEL, Maryland
JOHN J. FLYNT, JR., Georgia
TORBERT H. MACDONALD, Massachusetts
DON HAYWORTH, Michigan
CHARLES A. WOLVERTON, New Jersey
CARL HINSHAW, California
JOSEPH P. O'HARA, Minnesota
ROBERT HALE, Maine
JAMES I. DOLLIVER, Iowa
JOHN W. HESELTON, Massachusetts
JOHN B. BENNETT, Michigan
RICHARD W. HOFFMAN, Illinois
JOHN V. BEAMER, Indiana
WILLIAM L. SPRINGER, Illinois
ALVIN R. BUSH, Pennsylvania
PAUL F. SCHENCK, Ohio
JOSEPH L. CARRIGG, Pennsylvania
STEVEN B. DEROUNIAN, New York

ELTON J. LAYTON, *Clerk*
KENNETH J. PAINTER, *First Assistant Clerk*

Professional Staff

ANDREW STEVENSON
KURT BORCHARDT
SAM G. SPAL
MARTIN W. CUNNINGHAM

SUBCOMMITTEE ON HEALTH AND SCIENCE

J. PERCY PRIEST, Tennessee, *Chairman*

F. ERTEL CARLYLE, North Carolina
KENNETH A. ROBERTS, Alabama
MARTIN DIES, Texas
TORBERT H. MACDONALD, Massachusetts
DON HAYWORTH, Michigan
JOHN W. HESELTON, Massachusetts
RICHARD W. HOFFMAN, Illinois
WILLIAM L. SPRINGER, Illinois
JOSEPH L. CARRIGG, Pennsylvania
STEVEN B. DEROUNIAN, New York

DEPOSITED BY THE
UNITED STATES OF AMERICA

CONTENTS

	Page
Text of—	
H. R. 3459	2
H. R. 4114	4
S. 849	6
Report of—	
Bureau of the Budget on—	
H. R. 3459 and H. R. 4114	125
S. 849	126
Health, Education, and Welfare Department on—	
H. R. 3459 and H. R. 4114	128
S. 849	130
Labor Department on S. 849	131
Navy Department on H. R. 3459	128
Treasury Department on—	
H. R. 3459	126
H. R. 4114	127
Statement of—	
Andrus, Dr. E. Cowles, Johns Hopkins University	71
Babcock, Dr. Joseph M., vice president in charge of national affairs, American Optometric Association	109
Berini, Mrs. Ruth Y., executive director, National Foundation for Muscular Dystrophy, Inc	114
Bloedorn, Dr. Walter A., dean, George Washington University School of Medicine	35
Bronk, Dr. Detlev W., president National Academy of Sciences, and president, Rockefeller Institute for Medical Research	15
Coggeshall, Dr. Lowell T., special assistant to the Secretary, Department of Health, Education, and Welfare	9, 22
Conway, Bernard J., secretary, council on legislation, American Dental Association	99
Crockett, David C., Massachusetts General Hospital	55
Jacobs, Denholm M., associate director, Massachusetts Eye and Ear Infirmary	91
Lippard, Dr. Vernon, dean, Yale University School of Medicine	31
McDermott, Dr. Walsh, chairman, department of public health and preventive medicine, Cornell University Medical College	79
Moore, Dr. Robert A., vice chancellor, University of Pittsburgh	87
Peterson, Dr. Shailer, secretary, council on dental education, American Dental Association	99
Ravdin, Dr. Isador, University of Pennsylvania Medical School	75
Rudy, Dr. Lester H., superintendent, State Research Hospital, Galesburg, Ill	66
Schepens, Dr. Charles L., director, Retina Foundation, Boston, Mass	117
Sowell, F. C., vice president and general manager, radio station WLAC, Nashville, Tenn	52
Waine, Dr. Hans, director, New England division, Arthritis and Rheumatism Foundation	63
Weaver, Dr. Harry M., administrator for research, American Cancer Society, Inc	43
Additional information submitted for the record by—	
American Cancer Society, Inc.: Growth of cancer in the United States, chart	46
American Congress of Physical Medicine and Rehabilitation, letter from Dr. Glenn Gullickson, Jr., chairman, committee on legislation	124
American Heart Association, Inc., letter from Dr. Charles D. Marple, medical director	75

Additional information submitted for the record by—Continued Page
American Medical Association, letter from Dr. George F. Lull, secretary-general manager 85
American Osteopathic Association, statement of Dr. C. D. Swope, chairman, department of public relations 134
Crockett, David C.: Pioneering achievements in medical science at the Massachusetts General Hospital 57
Forster, Dr. Francis M., dean and professor of neurology, Georgetown University Medical School, statement of 133
Health, Education, and Welfare Department: Statement regarding amount of private gifts and contributions toward financing of medical school needs, in reply to request of Mr. Heselton 28
Homburger, Dr. Freddy, letter from 132
McCormack, Hon. John W., letter from 132
National Association for Mental Health, statement of Dr. George S. Stevenson, national and international consultant 83
National Heart Committee, telegram from Anna M. Rosenberg, cochairman 38
National Mental Health Committee, Inc., telegram from Mike Gorman, executive director, Mrs. Albert D. Lasker, cochairman, and Mrs. Florence Mahoney, cochairman 37
National Science Foundation, statement of Dr. Alan T. Waterman, director 40
National Tuberculosis Association, letter from Dr. Joseph B. Stocklen, chairman, committee on cooperation with Federal agencies 36
Stevens, Christine, statement of 40
Ulmer, J. M., statement of 38
White, Dr. Paul, cablegram from 116

NON-FEDERAL HEALTH RESEARCH FACILITIES

WEDNESDAY, APRIL 11, 1956

HOUSE OF REPRESENTATIVES,
HEALTH AND SCIENCE SUBCOMMITTEE OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D. C.

The subcommittee met at 10 a. m., pursuant to call, in room 1334, New House Office Building, Hon. J. Percy Priest (chairman), presiding.

The CHAIRMAN. The subcommittee will come to order.

The subcommittee is meeting this morning to begin hearings on S. 849, H. R. 3459, and H. R. 4114. S. 849, as you know, has already passed the Senate. These bills would provide Federal assistance to non-Federal institutions for the construction of research facilities.

I believe that these bills are very important pieces of health legislation because they are intended to redress a serious state of imbalance which presently exists in our national health program.

All of us recognize that many diseases cause widespread suffering, disability, and premature death. These result in tremendous financial impact on the families of the sufferers. They place a severe economic burden on States and local communities. They greatly increase the cost of business and industry. All of these consequences severely affect our Nation's welfare, economy, and security.

In order to secure new weapons in our fight against crippling and killing diseases, we have turned increasingly to medical and dental research and to fundamental studies that are essential to progress in these fields. Through the Public Health Service, the Federal Government has carried on a 3-way program. First, the Service has conducted medical and dental research and related fundamental studies in its own research facilities. Secondly, the Service has made grants for the conduct of such research in non-Federal research facilities. And, finally, the Service has supported the training of qualified young scientists in non-Federal research and training facilities.

In order to appreciate the tremendous growth of these programs over a 10-year span, one needs only to compare the 1947 expenditures for each of these Public Health Service programs with the amounts provided by the House of Representatives of 1957:

In 1947, the National Institutes of Health spent close to $3 million for intramural research. For 1957, the amount appropriated by the House is $30,784,600, or more than 10 times the 1947 amount.

For extramural research grants, the 1947 figure was approximately $3½ million. For 1957, the House of Representatives appropriated $60,465,000, or almost 20 times the amount available 10 years ago.

For training, the 1947 amount was only $325,000; for 1957, the amount appropriated is $25,118,000, or about 77 times the 1947 amount.

The effectiveness of these programs is placed in jeopardy at the present time in my opinion because of the increasing inadequacy of non-Federal research and training facilities. These facilities are no longer adequate for the conduct of medical and dental and related research and they are inadequate to train the additional numbers of young scientists both in regard to basic and advanced training in preparation for careers in these scientific fields.

Funds for research and training in medical and dental research have been contributed in ever-increasing amounts by individuals, private funds, foundations, the professions, industry, and State and local governments, as well as by the Federal Government. However, funds for the construction of new an improved non-Federal medical and dental research and training facilities are not available at the present time in amounts adequate to meet immediate and forseeable needs.

Our national experience has demonstrated, in connection with the construction of hospitals and related health facilities, that private sources and State and local governments will provide additional funds for the construction of such facilities if the Federal Government shares in the expense of such construction. It is my hope that the enactment of this legislation will similarly stimulate contributions from private sources and from State and local governments for the construction of non-Federal research and training facilities.

I am glad to see that S. 849 has already passed the Senate unanimously. It is my hope that the House will take similar action at an early date. I feel very strongly that enactment of this legislation is needed to provide the balance which is required in order to carry on successfully a full-scale war against crippling and killing diseases.

At this point in the record H. R. 3459, H. R. 4114, and S. 849 will be printed.

(The bills referred to follow:)

[H. R. 3459, 84th Cong., 1st sess.]

A BILL To provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Medical Research Act of 1955".

SEC. 2. The Public Health Service Act (consisting of titles I to VI, inclusive, of the Act of July 1, 1944 (58 Stat. 682)) is hereby amended by inserting at the end thereof the following:

"TITLE VII—MEDICAL RESEARCH FACILITIES

"DECLARATION OF POLICY

"SEC. 701. The Congress hereby finds and declares that—

"(a) the ravages of certain devastating diseases causing widespread suffering, crippling, and premature death, result in consequent loss of productivity to the Nation; an unnecessary economic loss to business and industry; severe financial impact on the families of the sufferers; an economic burden on local communities; and an impact on the defensive strength of the Nation;

"(b) promising new scientific developments remain unexploited because facilities for research are lacking or sadly deficient in those localities where research skills or patients are located;

"(c) there is a need to attract young scientists into this most important field, which need cannot be met if facilities to carry on research are denied them; and

"(d) it is sound public policy that, in our search for the causes of and cures for these devastating diseases, we encourage that freshness of vision and exploration of new ideas which can best be assured if research can be carried on in every region of the country and under competent local auspices in addition to that carried on directly by the Federal Government.

"PURPOSE

"SEC. 702. It is the purpose of this title to provide for grants-in-aid to accredited and nonprofit universities and schools of medicine, dentistry, and osteopathy, hospitals, laboratories, and other nonprofit institutions, engaged in or competent to engage in research, for the purpose of defraying the cost of construction of facilities, or the installation of equipment, needed for the conduct of research into the causes of and possible cures for crippling and killing diseases, including cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy.

"APPROPRIATION

"SEC. 703. There is hereby authorized to be appropriated for the fiscal year ending June 30, 1956, and each of the two succeeding fiscal years, not to exceed $30,000,000, for the purpose of making grants-in-aid provided for in this title.

"DEFINITIONS

"SEC. 704. As used in this title—

"(a) The term 'construction' includes construction of new buildings, expansion, remodeling, and alteration of existing buildings, and initial equipment of any such buildings; including architects' fees, but excluding the cost of off-site improvements and the cost of the acquisition of land;

"(b) The term 'nonprofit' means owned and operated by one or more nonprofit corporations or associations no part of the net earnings of which inures, or may lawfully inure, to the benefit of any private shareholder or individual; and

"(c) The term 'accredited' means approved or accredited by a recognized body or bodies approved by the Surgeon General after he has obtained the advice and recommendation of the National Council on Medical Research Facilities (created by section 705).

"NATIONAL COUNCIL ON MEDICAL RESEARCH FACILITIES

"SEC. 705. (a) There is hereby created in the Public Health Service the National Council on Medical Research Facilities (hereinafter referred to as the 'Council'), to consist of the Surgeon General, who shall be Chairman, one representative of each of the national advisory councils attached to the National Institutes of Health, to be designated by the respective councils, and one additional member who shall be experienced in the planning, construction, or administration of a medical research facility, to be appointed by the Surgeon General with the approval of the Secretary of Health, Education, and Welfare. Vacancies on the Council shall be filled in the same manner as the original appointments. The Council shall cease to exist on June 30, 1958.

"(b) It shall be the function of the Council to act upon applications for grants-in-aid under section 706, and to make recommendations to the Surgeon General in connection therewith.

"(c) For the purposes of this title the Continental United States shall be divided into four regions as follows:

"Region I: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, and Delaware.

"Region II: Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Tennessee, and Kentucky.

"Region III: Minnesota, Wisconsin, Michigan, Ohio, Indiana, Illinois, Missouri, and Iowa.

"Region IV: North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Louisiana, Texas, New Mexico, Arizona, California, Oregon, Washington, Idaho, Montana, Wyoming, Colorado, Utah, and Nevada.

Grants-in-aid under this title shall be made in such manner that the sum obtained by adding (A) the total of such grants-in-aid made to any region, to (B) the total of the grants-in-aid made to such region by the Surgeon General for the same purposes from funds appropriated therefor prior to the date of enactment of this title, shall be approximately equal to the corresponding sum for each of the other regions. With respect to grants-in-aid made from the appropriations for the first two fiscal years for which appropriations are made pursuant to the provisions of this title, the Council and Surgeon General shall be deemed to have complied with the provisions of the immediately preceding sentence if (A) there is utilized 80 per centum of each such appropriation to make grants-in-aid in accordance with the provisions of such sentence, and (B) the total of the grants-in-aid to any region from the remaining 20 per centum of each such appropriation does not exceed one-third of such 20 per centum.

"APPROVAL OF PROJECTS AND PAYMENTS

"SEC. 706. (a) Applicants for Federal assistance under this title shall submit applications to and have such applications approved by the Council. Such application shall be in such form and contain such information and data with respect to the applicant and the proposed facility or equipment, as the Surgeon General may by regulations prescribe, including a detailed plan of the contemplated construction, and a statement as to the purposes to which the proposed facility or equipment will be devoted.

"(b) If the Council approves the application, the Surgeon General shall make a grant-in-aid to the applicant in the amount applied for, or such lesser amount as the Council determines to be appropriate; but no grant-in-aid shall exceed one-half of the cost of construction, including plans and specifications, of the research facilities, or one-half of the cost of installation of the equipment, as the case may be."

TECHNICAL AMENDMENTS TO ACT OF JULY 1, 1944

SEC. 3. The Act of July 1, 1944 (58 Stat. 682), as amended, is hereby further amended by changing the number of title VII to title VIII and by changing the numbers of sections 701 to 714, inclusive, and references thereto, to sections 801 to 814, respectively.

[H. R. 4114, 84th Cong., 1st sess.]

A BILL To provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Medical Research Act of 1955."

SEC. 2. The Public Health Service Act (consisting of titles I to VI, inclusive, of the Act of July 1, 1944 (58 Stat. 682)), is hereby amended by inserting at the end thereof the following:

"TITLE VII—MEDICAL RESEARCH FACILITIES

"DECLARATION OF POLICY

"SEC. 701. The Congress hereby finds and declares that—

"(a) the ravages of certain devastating diseases causing widespread suffering, crippling, and premature death, result in consequent loss of productivity to the Nation; an unnecessary economic loss to business and industry; severe financial impact on the families of the sufferers; an economic burden on local communities; and an impact on the defensive strength of the Nation;

"(b) promising new scientific developments remain unexploited because facilities for research are lacking or sadly deficient in those localities where research skills or patients are located;

"(c) there is a need to attract young scientists into this most important field, which need cannot be met if facilities to carry on research are denied them; and

"(d) it is sound public policy that, in our search for the causes of and cures for these devastating diseases, we encourage that freshness of vision and exploration of new ideas which can best be assured if research can be carried on in every region of the country and under competent local auspices in addition to that carried on directly by the Federal Government.

"PURPOSE

"SEC. 702. It is the purpose of this title to provide for grants-in-aid to accredited and nonprofit universities and schools of medicine, dentistry, and osteopathy, hospitals laboratories, and other nonprofit institutions, engaged in or competent to engage in research, for the purpose of defraying the cost of construction of facilities, or the installation of equipment, needed for the conduct of research into the causes of and possible cures for crippling and killing diseases, including cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy.

"APPROPRIATION

"SEC. 703. There is hereby authorized to be appropriated for the fiscal year ending June 30, 1956, and each of the two succeeding fiscal years, not to exceed $30,000,000, for the purpose of making grants-in-aid provided for in this title.

"DEFINITIONS

"SEC. 704. As used in this title—

"(a) The term 'construction' includes construction of new buildings, expansion, remodeling, and alteration of existing buildings, and initial equipment of any such buildings; including architects' fees, but excluding the cost of off-site improvements and the cost of the acquisition of land;

"(b) The term 'nonprofit' means owned and operated by one or more nonprofit corporations or associations no part of the net earnings of which inures, or may lawfully inure, to the benefit of any private shareholder or individual; and

"(c) The term 'accredited' means approved or accredited by a recognized body or bodies aproved by the Surgeon General after he has obtained the advice and recommendation of the National Council on Medical Research Facilities (created by section 705).

"NATIONAL COUNCIL ON MEDICAL RESEARCH FACILITIES

"SEC. 705. (a) There is hereby created in the Public Health Service the National Council on Medical Research Facilities (hereinafter referred to as the 'Council'), to consist of the Surgeon General, who shall be Chairman, one representative of each of the national advisory councils attached to the National Institutes of Health, to be designated by the respective councils, and one additional member who shall be experienced in the planning, construction, or administration of a medical research facility, to be appointed by the Surgeon General with the approval of the Secretary of Health, Education, and Welfare. Vacancies on the Council shall be filled in the same manner as the original appointments. The Council shall cease to exist on June 30, 1958.

"(b) It shall be the function of the Council to act upon applications for grants-in-aid under section 706, and to make recommendations to the Surgeon General in connection therewith.

"(c) For the purposes of this title the Continental United States shall be divided into four regions as follows:

"Region I: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, and Delaware.

"Region II: Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Tennessee, and Kentucky.

"Region III: Minnesota, Wisconsin, Michigan, Ohio, Indiana, Illinois, Missouri, and Iowa.

"Region IV: North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Louisiana, Texas, New Mexico, Arizona, California, Oregon, Washington, Idaho, Montana, Wyoming, Colorado, Utah, and Nevada.

Grants-in-aid under this title shall be made in such manner that the sum obtained by adding (A) the total of such grants-in-aid made to any region, to (B) the total of the grants-in-aid made to such region by the Surgeon General for the same purposes from funds appropriated therefor prior to the date of enactment of this title, shall be approximately equal to the corresponding sum for each of the other regions. With respect to grants-in-aid made from the appropriations for the first two fiscal years for which appropriations are made pursuant to the provisions of this title, the Council and Surgeon General shall be deemed to have complied with the provisions of the immediately preceding sentence if (A) there is utilized 80 per centum of each such appropriation to make grants-in-aid in accordance with the provisions of such sentence, and (B) the total of the grants-in-aid to any region from the remaining 20 per centum of each such appropriation does not exceed one-third of such 20 per centum.

"APPROVAL OF PROJECTS AND PAYMENTS

"SEC. 706. (a) Applicants for Federal assistance under this title shall submit applications to and have such applications approved by the Council. Such application shall be in such form and contain such information and data with respect to the applicant and the proposed facility or equipment, as the Surgeon General may by regulations prescribe, including a detailed plan of the contemplated construction, and a statement as to the purposes to which the proposed facility or equipment will be devoted.

"(b) If the Council approves the application, the Surgeon General shall make a grant-in-aid to the applicant in the amount applied for, or such lesser amount as the Council determines to be approriate; but no grant-in-aid shall exceed one-half of the cost of construction, including plans and specifications, of the research facilities, or one-half of the cost of installation of the equipment, as the case may be."

TECHNICAL AMENDMENTS TO ACT OF JULY 1, 1944

SEC. 3. The Act of July 1, 1944 (58 Stat. 682), as amended, is hereby further amended by changing the number of title VII to title VIII and by changing the numbers of sections 701 to 714, inclusive, and references thereto, to sections 801 to 814, respectively.

[S. 849, 84th Cong., 1st sess.]

AN ACT To provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, tuberculosis, multiple sclerosis, epilepsy, cystic fibrosis, and muscular dystrophy, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Medical Research Act of 1955".

SEC. 2. The Public Health Service Act (consisting of titles I to VI, inclusive, of the Act of July 1, 1944 (58 Stat. 682)), is hereby amended by inserting at the end thereof the following:

"TITLE VII—MEDICAL RESEARCH FACILITIES

"DECLARATION OF POLICY

"SEC. 701. The Congress hereby finds and declares that—

"(a) the ravages of certain devasting diseases causing widespread suffering, crippling, and premature death result in consequent loss of productivity to the Nation; an unnecessary economic loss to business and industry; severe financial impact on the families of the sufferers; an economic burden on local communities; and an impact on the defensive strength of the Nation;

"(b) promising new scientific developments remain unexploited because facilities for research are lacking or sadly deficient in those localities where research skills or patients are located;

"(c) there is a need to attract young scientists into this most important field, which need cannot be met if facilities to carry on research are denied them; and

"(d) it is sound public policy that, in our search for the causes of and cures for these devastating diseases, we encourage that freshness of vision and exploration of new ideas which can best be assured if research can be carried on in every region of the country and under competent local auspices in addition to that carried on directly by the Federal Government.

"PURPOSE

"SEC. 702. It is the purpose of this title to provide for grants-in-aid to accredited public and other nonprofit universities and schools of medicine, dentistry, and osteopathy, hospitals, laboratories, and other public and nonprofit institutions, engaged in or competent to engage in research, for the purpose of defraying the cost of construction of facilities, or the purchase and installation of equipment, needed for the conduct of research into the causes of and possible cures for crippling and killing diseases, including cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, tuberculosis, multiple sclerosis, epilepsy, cystic fibrosis, and muscular dystrophy.

"APPROPRIATION

"SEC. 703. There is hereby authorized to be appropriated for the fiscal year ending June 30, 1956, and each of the two succeeding fiscal years, not to exceed $30,000,000, for the purpose of making grants-in-aid provided for in this title.

"DEFINITIONS

"SEC. 704. As used in this title—

"(a) The term 'construction' includes construction of new buildings, expansion, remodeling, and alteration of existing buildings, and initial equipment of any such buildings; including architects' fees and plans and specifications, but excluding the cost of off-site improvements and the cost of the acquisition of land;

"(b) The term 'nonprofit' means owned and operated by one or more nonprofit corporations or associations no part of the net earnings of which inures, or may lawfully inure, to the benefit of any private shareholder or individual; and

"(c) The term 'accredited' means approved or accredited by a recognized body or bodies approved by the Surgeon General after he has obtained the advice and recommendation of the National Council on Medical Research Facilities (created by section 705).

"NATIONAL COUNCIL ON MEDICAL RESEARCH FACILITIES

"SEC. 705. (a) There is hereby created in the Public Health Service the National Council on Medical Research Facilities (hereinafter referred to as the 'Council'), to consist of the Surgeon General, who shall be Chairman, one representative (and one alternate to serve in the absence of such representative) of each of the national advisory councils attached to the National Institutes of Health, to be designated by the respective councils, and one additional member who shall be experienced in the planning, construction, or administration of a medical research facility, to be appointed by the Surgeon General with the approval of the Secretary of Health, Education, and Welfare. Vacancies on the Council shall be filled in the same manner as the original appointments. Members of the Council shall receive the same compensation and allowances as are authorized in the case of members of national advisory councils in section 208 (c) of this Act. The Council shall cease to exist on June 30, 1958.

"(b) It shall be the function of the Council to act upon applications for grants-in-aid under section 706, and to make recommendations to the Surgeon General in connection therewith.

"(c) For the purposes of this title the States shall be divided into four regions as follows:

"Region I: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, and Delaware.

"Region II: Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Tennessee, Kentucky, Puerto Rico, and the Virgin Islands.

"Region III: Minnesota, Wisconsin, Michigan, Ohio, Indiana, Illinois, Missouri, and Iowa.

"Region IV: North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Louisiana, Texas, New Mexico, Arizona, California, Oregon, Washington, Idaho, Montana, Wyoming, Colorado, Utah, Nevada, Alaska, and Hawaii.

"Grants-in-aid under this title shall be made in such manner that the sum of such grants-in-aid made to any region shall be approximately equal to the corresponding sum for each of the other regions. With respect to grants-in-aid made from the appropriations for the first two fiscal years for which appropriations are made pursuant to the provisions of this title, the Surgeon General shall be deemed to have complied with the provisions of the immediately preceding sentence if (A) there is utilized 80 per centum of each such appropriation to make grants-in-aid in accordance with the provisions of such sentence, and (B) the total of the grants-in-aid to any region from the remaining 20 per centum of each such appropriation does not exceed one-third of such 20 per centum.

"APPROVAL OF PROJECTS AND PAYMENTS

"SEC. 706. (a) Applicants for Federal assistance under this title shall submit applications to the Surgeon General for review and recommendation by the Council. Such application shall be in such form and contain such information and data with respect to the applicant and the proposed facility or equipment, as the Surgeon General may by regulations prescribe, including a detailed plan of the contemplated construction, and a statement as to the purposes to which the proposed facility or equipment will be devoted.

"(b) The Surgeon General is authorized, upon the recommendation of the Council, to make a grantin-aid to the applicant in the amount recommended by the Council, or such lesser amount as the Surgeon General determines to be appropriate; but no grant-in-aid shall exceed one-half of the cost of construction of the research facilities, or one-half of the cost of purchase and installation of the equipment, or both, as the case may be."

TECHNICAL AMENDMENTS TO ACT OF JULY 1, 1944

SEC. 3. The Act of July 1, 1944 (58 Stat. 682), as amended, is hereby further amended by changing the number of title VII to title VIII and by changing the numbers of sections 701 to 714, inclusive, and references thereto, to sections 801 to 814, respectively.

Passed the Senate July 18, 1955.

Attest:

FELTON M. JOHNSTON, *Secretary.*

The CHAIRMAN. We are very happy to have this morning as our first witness Dr. Lowell T. Coggeshall, Special Assistant for Health and Medical Affairs of the Department of Health, Education, and Welfare. Before Dr. Coggeshall begins his testimony, may I make this statement so that committee members will understand and I am sure, understanding, will be entirely willing to cooperate to that extent.

Our witness to follow Dr. Coggeshall is Dr. Detlev W. Bronk, president of the National Academy of Sciences. Dr. Bronk of necessity must leave as soon as possible for a memorial service, and it has been suggested and I think wisely so, that after Dr. Coggeshall's statement he stand aside and permit Dr. Bronk to give his statement and then Dr. Coggeshall will come back for questioning by the committee.

Mr. DIES. Why not let him go ahead and make his statement first.

The CHAIRMAN. He believes, and Dr. Coggeshall thinks, that there will be time for him if we go ahead with the opening presentation from the Department and simply withhold our questions of Dr. Coggeshall until after Dr. Bronk has made his statement. With that understanding, if that is agreeable, we will proceed on that basis.

Dr. Coggeshall, we are very happy to have you here this morning.

STATEMENT OF DR. LOWELL T. COGGESHALL, SPECIAL ASSISTANT TO THE SECRETARY, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Dr. COGGESHALL. Thank you, Mr. Priest. I am very happy to appear before you this morning.

For purpose of identification, before assuming my present capacity in Government I was dean of the medical school and chairman of the division of biological sciences at the Univervity of Chicago as well as Chairman of the Committee on Medical Research for Medicine for the Department of Defense.

Mr. Chairman and members of the committee, I am pleased to have this opportunity to appear before you in connection with your consideration of S. 849. This bill provides a means for the Federal Government to share in the cost of constructing medical and dental research facilities in non-Federal institutions.

The point of view I bring with me is that of Secretary Folsom's recently appointed Special Assistant for Health and Medical Affairs, as well as that of one, as I stated, who has been responsible for a large non-Federal medical research and teaching institution. I trust that it is not inappropriate for me to record here an appreciation for the leadership and support of the chairman in particular and the members of this committee in the fields of medical services, research, and teaching, as observed over the past several years while I have been dean of the medical school and the biological sciences at the University of Chicago.

In the course of this committee's previous deliberations on a wide range of health topics, you have had frequent occasion to hear testimony concerning the human and economic burden of disease, the present and potential role of research in lightening this burden, and the part played by the Federal Government in our national medical research effort.

I will not go over this ground again, although it certainly has broad relevance to the bill under discussion. Instead, I will briefly recapitulate the significant forces in this evolutionary process, comment on the general need for expansion and improvement of research facilities, describe how the Department views research facilities in relation to other programs, and finally make a series of specific comments on S. 849 as now proposed.

The health of our people is a matter of grave national concern, since health is one of our most essential national resources. This fact has long been recognized, and the last half century has seen dramatic advances on two fronts in the attack on disease. On the one hand, our country has achieved wider and more effective use of existing knowledge to prevent and control disease. At the same time, we have broadened and strengthened our efforts to acquire new knowledge through research.

Medical research has been increasingly identified as the essential base for medical and public health progress. Since World War II, support for medical research from all sources—private, voluntary, and governmental—has increased fourfold, from about $60 million in 1945 to $240 million in 1955.

I might point out at this time that research of all types in this country, particularly industrial research, is expending slightly under $5 billion in comparison to this $240 million for medicine and health.

As in other matters bearing on the health of our people, the Government has assumed a share of this responsibility for support of medical research. Since participation by the Government has been a stimulus to instead of a substitute for non-Federal activities, the net result has been a relatively rapid total expansion of the Nation's medical research performance and capacity.

Incidentally, several studies have shown that every dollar of Federal money has stimulated one or more dollars from the public, from private sources.

Much of the Federal program in support of medical research has centered in the Department of Health, Education, and Welfare, most specifically in the principal research arm of the Public Health Service, the National Institutes of Health at Bethesda, Md.

In recent years, the programs of the National Institutes of Health, of the Public Health Service, have embraced three major approaches.

First, a comprehensive research program has been conducted in laboratory and clinical facilities at Bethesda. You are all familiar with this work, and I know you are proud, as I am, of its accomplishments.

Second, the National Institutes of Health have administered a broad program for the support of medical research through grants to non-Federal institutions. These grants are for the support of individual research projects that are formulated and carried out by leading scientists throughout the country. One measure of their importance may be found in the fact that they support roughly one-fifth of all the medical research in this country today. But they are important not only because of the dollars involved; they provide a stable base for our national medical research effort and the stimulus for other public and private support.

Third, through the National Institutes of Health there has been administered a varied and extensive program in support of research training. Our Nation is becoming keenly aware of the present and future dangers that are inherent in a shortage of scientific manpower in all fields. This is not simply a matter of competition among nations. Scientific manpower has become a vital factor in almost every aspect of our daily life. Manpower in the medical and biological sciences has a direct correlation with progress against disease. Through research fellowships, traineeships, and other forms of training support, the Public Health Service makes a major contribution to health of the Nation. In my opinion, probably the greatest responsibility now before us is to detect, develop, and retain the brilliant young mind of a future scientist. If adequately compensated and given a suitable environment in which to work, he will recognize the important research problems and know the best approach to their solution.

The Department's budget proposals for 1957, now in the process of congressional review, reflect the Department's concern that these current programs related to medical research and scientific manpower be continued and strengthened, with primary emphasis on support for these functions in non-Federal institutions.

But a sound and balanced program of support for medical research has another element which must be taken into account, to which this committee has addressed itself several times. I am referring to facilities—buildings and equipment. If is clearly illogical to give active support to research projects and to research training without also being concerned with the physical facilities in which these activities must be carried out. In recent years it has become increasingly evident that modern medical research, in addition to investigators, requires proper housing for the complicated and expensive equipment now being used in medical research. Only if there are adequate facilities can there be assurance that the present research effort will be carried forward with maximum effectiveness. They are the workshops, if you will, from which our great advances in medicine and science have evolved, particularly in the last 2 or 3 decades, as well as being the source for the increasing number of carefully trained scientists, physicians, and dentists required for the future.

There can be no question that the physical plants of the Nation's institutions for research and medical and dental training are becoming more and more inadequate to meet their heavy responsibilities. In part because of the limited availability of non-Federal aid for construction, and in part because of the necessity to channel funds into operations rather than new facilities, these institutions have been unable to provide the costly facilities and equipment needed if they are to take full advantage of the latest developments in medical science and move forward into uncharted fields.

Three years ago this committee, in its Preliminary Report on the Inquiry, noted that "In many universities, medical schools, and other medically related research institutions the absence of adequate laboratory space is the most important single factor restricting the volume and kind of medical research that they can undertake. The financial status of medical schools is such that very few can finance the construction of buildings from their own funds, or other private gifts. Federal funds for construction of laboratory facilities are needed."

I might say from personal experience that most of the money we get for medical research in the private institutions today has specific limitations which say that none of this can be used for the alteration of laboratories, in other words, for bricks and mortar.

Looking forward to a medical research program that will, in the words of the President, grow "as our needs for research findings expand, as the frontiers of science move ahead, and as our economy expands," it seems clear that better facilities for medical research are imperative, and that Federal aid is necessary and appropriate both in itself and as a stimulus to private giving.

May I add here I think it is long overdue.

As you know, Mr. Chairman, our Department has recently submitted a broad legislative proposal seeking the establishment of a new construction grant program to complement existing research and training grant programs. Since H. R. 9013, the bill which embodies this legislative proposal, is not under consideration at this hearing, I shall not undertake to describe that bill in any detail. I would like, however, to outline briefly some of the principles on which the Department's proposal is based. I believe that these principles may be helpful in evaluating the bill before you at this time, which, in our opinion, is too limited in its scope.

While the immediate purpose of Federal aid in this area is to help build and equip urgently needed facilities, the more fundamental objective is a broader one—namely, the expansion of our potential for advancing the frontiers of medical knowledge. This concept is the key to all other considerations, for it is only when we think in terms of potential for progress—rather than of bricks and mortar and laboratory equipment—that we can gain true perspective on the nature and scope of the construction job that needs to be done.

Let me expand on this basic concept by describing three criteria which we believe should be met by any such construction grant program.

First, if our investment of Federal dollars is to yield the greatest dividends in research potential, the scope of the research to be conducted in the new or improved facilities must be broadly defined. It cannot be confined to the immediate need for the conquest of any specific disease or condition. Rather, it should embrace the full range of medical and biological sciences. It should be broad enough to include studies extending from basic laboratory research to clinical observation of disease in man in the hospital.

Second, eligibility for research construction grants should be broadly defined. It should include medical and dental schools, and should also embrace other university laboratories—for example, much of the medical research today is being supplemented and assisted by the findings in the physical science laboratories; for example, the radioactive isotopes used so broadly came from those laboratories—clinical research units of hospitals and independent research centers. It should include not only our larger institutions with well-established research reputations, but also smaller research centers throughout the country with facilities now too limited to permit the development of the full research potential of their staffs. It should also include research and training facilities of new schools that are in genesis.

Third, since training is a vital element in the expansion of research potential, the definition of research facilities should recognize that the facilities essential to the training of future scientists may contribute as much to expanded research potential as those which are required for the immediate research activities of fully trained investigators. Such facilities are the source of supply for all our future physicians and dentists, and for most of our graduate students in the basic medical sciences.

This applies particularly to medical and dental schools in which the research mission is combined with and supported by a training mission. Not only is each of these essential in itself to expansion of our research potential, but each in practice is so closely interrelated with the other that no clear line can be drawn between them. This interrelations of the research and training objectives is ilustrated and accentuated by the common use of a single facility for both purposes.

I might point out here, Mr. Chairman, that the animal quarters used so widely for research purposes are also used as a source of material for animals in teaching physiology, pharmacology, and whatnot. In my own institution, for example, we had a meeting last month in which the clinical chemical laboratory used for making blood determinations to establish the diagnosis of serious diseases, was under the charge of being used too much for research purposes. So, many of

these laboratorie are used for both teaching and research and I think they can not be separated.

Indeed, only a very small proportion of the buildings of most medical and dental schools could properly be classified as being exclusively either research or training facilities. I think here the actual teaching classroom is the only one I can think of. In most instances institutions they are used for scientific seminars. Most of the laboratories serve both purposes, as do most of the libraries, seminar rooms, staff offices, and other related facilities. Such dual-purpose structures are essential to the efficient administration of those institutions.

Thus in our own legislative proposal, we recommended an integrated program embracing all of the essential facilities required by medical, dental, and public health schools for both research and training purposes. In our opinion, Federal construction grants for both functions are necessary and appropriate.

We further believe that the Federal role in such a grant program should be to supplement—not to replace—non-Federal construction funds. We believe that Federal aid on a matching basis will be effective in stimulating financial support from private and other non-Federal sources and that the aggregate construction program will therefore far exceed the total Federal funds appropriated for this purpose.

Applying these general criteria to S. 849, we would regard the following provisions as commendable: (1) the extension of eligibility for construction grants to include all of the principal categories of nonprofit research institutions; (2) the definition of construction to include the alteration of existing facilities and the purchase and installation of initial equipment for new and existing structures; and (3) the limitation of any Federal grant to one-half the cost of the project, whether construction or equipment.

Among the shortcomings we see in the bill are four which should be mentioned.

First, the limitation of grant funds to the construction or equipment of facilities "needed for the conduct of research" would appear to be too restrictive to embrace some of the related facilities—and especially facilities used for training purposes—which we believe to be essential to the expansion of the Nation's total research potential. As I indicated earlier, we believe that even if expanded research potential were the sole objective, we cannot afford to ignore the essential interrelationship between the research and teaching missions of schools providing basic and advanced training for physicians, dentists, and public-health specialists.

Second, we believe that the time and appropriation limitations in the bill are too restrictive—particularly if the definition of facilities is broadened. We believe an aggregate authorization of $250 million over a 5-year period would be a more realistic figure in the light of the existing needs.

Third, although we agree that broad geographical distribution of grants is necessary to assure maximum development of research potential, we believe that the regional equalization provisions of S. 849 are unduly restrictive. The four regions which would be established have no significance from the standpoint of research or of sectional cohesion. Region IV, for example, would embrace all of the States

from Louisiana and the Dakotas to the Pacific coast, plus Alaska and Hawaii. From the administrative standpoint, also, such an equalization formula would complicate and impede the approval of meritorious applications for grants. If the duration of the program and the total amount of appropriations were extended, as suggested earlier, we believe that equitable geographical distribution would be accomplished without any rigid distribution formula in the statute.

Fourth, we have some reservations with respect to the composition of the proposed National Council on Medical Research Facilities, which under S. 849 would consist principally of representatives of each of the present national advisory councils attached to the National Institutes of Health. We are in accord with the principle of coordinating research-construction-grant objectives and policies with those of existing research-and-training-grant programs, but we question the wisdom of placing the primary burden on selected representatives of the existing councils—although, because of their eminence in their respective fields, persons appointed to such councils should not be precluded from serving on the Research Facilities Council. We also believe that a somewhat larger council than the one prescribed in S. 849 would be desirable in order to provide a broader representation from the various fields of research and training affected.

In addition to these four substantive points, I might add that the repeated emphasis in the bill on the relationship of the program to "crippling and killing diseases" implies a limitation of objective which we do not believe was intended. As I indicated earlier, we believe that construction grants should not be limited to facilities for categorical research. While this language in the bill would not appear to limit actual program operations, it would be desirable to have the importance of facilities for basic as well as applied research recognized in the enabling legislation.

In summary, Mr. Chairman, we believe there is an urgent need for the construction and improvement of non-Federal medical and dental research and training facilities. We believe that the Federal grants, on a matching basis, offer an effective and appropriate means of stimulating such construction, and we believe that such grants are a necessary corollary to existing Public Health Service grant programs for the support of research projects and the training of additional research scientists. We are therefore in accord with the objectives of S. 849, but we believe the provisions of the bill are too restrictive in several important respects.

Since our recommendations as to the most effective construction-grant program are set forth in a related legislative proposal before your committee, I have not undertaken to suggest specific amendments to S. 849. I have attempted, however, to propose several basic concepts or criteria which we believe to be essential to any construction-grant program designed to broaden and expand the Nation's research potential.

I hope these suggestions will be helpful, and our Department will be happy to be of further assistance if your committee should so desire.

The CHAIRMAN. Thank you very much, Doctor.

Under the previous agreement, if you will stand aside and then return after Dr. Bronk has made his statement, we should appreciate it.

Dr. Bronk, I know your time schedule, Doctor. I realize it is most important that you keep it. So you may proceed as you see fit in accordance with your schedule.

STATEMENT OF DR. DETLEV W. BRONK, PRESIDENT, NATIONAL ACADEMY OF SCIENCES, PRESIDENT, ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, NEW YORK CITY

Dr. BRONK. Thank you very much, sir. I especially appreciate your courtesy in permitting me to interrupt the normal course of your proceeding so I may attend memorial services for the widow of Simon Flexner, a great pioneer in medical research in this country.

I am president of the National Academy of Sciences and president of the Rockefeller Institute for Medical Research, in New York. Perhaps I should also say that I am Chairman of the National Science Board which you, Mr. Chairman, and members of your committee, were so instrumental in creating many years ago and on which I had the pleasure of testifying before you.

As I think of this problem which has been so well analyzed by Dr. Coggeshall, I see three basic elements for the furtherance of medical research and its translation into human usefulness. I would first speak of the generous will of the American people to aid their fellow citizens, and this I think is nowhere better evidenced than in our country which has so great a concern for the welfare of our people.

I need not elaborate on that because you, as representatives of the American people, exemplify this will to serve an especially to serve those who are less fortunate than we.

The second essential element in the furtherance of research is an adequate number of men and women with the will to understand the laws of nature and disciplined minds. I speak of that because, in Dr. Coggeshall's comment upon the importance of training as an essential element in medical research, I believe we cannot too greatly emphasize this point of view, I am continually impressed by the fact that there is a great concern for the conquest of specific diseases without adequate recognition of the fact that the ability to wage those battles successfully depends upon men and women who have been adequately trained on a broad foundation which enables them to develop their abilities for that which we are concerned with here this morning.

How one can best increase the scientific potential of our country is, as you know, one of the grave problems which concerns our country at the present time. I need not speak, I am sure, of the startling information which has recently been revealed to this country regarding the decreased interest and emphasis on science in our public educational system, especially as contrasted with some of those countries which constitute a threat to our way of life. But that is the question which is broader than I can deal with in my limited time this morning other than to say that unless there be adequate opportunities for those who are potentially interested in science to utilize their scientific training ultimately, there is no appeal which will draw more young men and women into careers in science. Also, if they see that we are inadequately equipped as a nation to discover and to utilize scientific knowledge, they are not going to have the regard for science which

is necessary in order to increase the emphasis upon science in our public educational system.

When it comes to the higher levels of scientific training, I believe that there is no better way of training an individual than to put him into an environment of research. This is the best place for the training of future scientists, and in this regard I would be in hearty accord with Dr. Coggeshall's emphasis upon a climate of research as the best environment in which scientific training should be carried forward.

So I would emphasize the fact that one cannot wisely separate facilities for research and facilities for training, believing, as I do, that the proper environment for the training of scientists is in a climate of active research.

Then a third element in the furtherance of medical research is adequate tools for research. I would be the first to admit and emphasize that a lively imagination, a keen curiosity and a trained mind constitute the three most important tools for research, but there are other tools needed also. I often have a nostalgic memory of the simple laboratory of Michael Faraday in the basement of the Royal Institution in London, and I think of the basement laboratory in Cambridge University where I first did my research. I think back to the fact that the pinnacle of my desire was a simple laboratory where I would have adequate time for contemplation. But the very fact that scientists discover new knowledge, and new knowledge leads to new instrumentalities for the discovery of still more knowledge, means that we as scientists who would like, above all things, to have simplicity for our investigations, are responsible for the development of new tools which enable us constantly to expand further the frontiers of knowledge.

So I would say the nostalgia for the simple days of the investigator who could work with a few simple experimental tools is gone, because of what we have already done. As I look forward I see an ever-greater need for tools to carry forward the still-expanding frontiers of knowledge. This is a part of our developing civilization and culture.

So although I would lay primary emphasis upon the training of investigators, I would be less than realistic if I did not realize that the best way to train them was in an environment of research, with adequate tools with which to learn, and with the promise of adequate tools to use in the continued intellectual adventure which is scientific research.

Again I would emphasize what Dr. Coggeshall has already stated with regard to the importance of adequate facilities for research and adequate facilities for the education of our future scientists.

I am not sure whether any of us is adequately aware of the very great problem which faces our country at the present time in this regard. I think back to a meeting of the board of trustees of the Johns Hopkins University this winter, when one of my colleagues said to me, "You are responsible for the building of this new scientific laboratory," which was dedicated last year. "Have you looked at the equipment which is in there for electronic research?"

I said, "I know all too well what you mean." We are training not only in that institution but in the great majority of the institutions of our country future scientists with equipment which would be scorned by our industrial laboratories in which these students will

subsequently work. We are going to impair our educational programs gravely unless we provide them with the tools which they will be forced to use in the future, which will enable them to develop themselves as they wish to develop.

Then I would go on to say just a word in support of the position which has been taken relative to the importance of fundamental research, without regard to this or that particular disease, because who can tell from what source will come the information which will enable us to find a cure or cures of the cause or causes of cancer or any other disease? It has often been said, in this room, that Roentgen, the German physicist, had no idea that what he was doing in his laboratory would enable physicians to see the inside of the human body. It was by a sheer accident that X-rays were discovered, with no thought whatsoever that it would have great medical implication.

So I believe that what we must do, if we would go forward wisely, is to lay a broad foundation of scientific endeavor from which will come rewards that are quite unanticipated, and the specific objectives we have in mind will be met in ways that no one can predict. Support the inquiring mind. Implement the workers with the inquiring minds. This, I believe, is the surest guaranty of the achievement of the objectives we have in mind.

I recall also, if I may go back to my days at Johns Hopkins University, that when we were considering how we could better facilitate our basic work in the medical school there in anatomy, physiology, and biochemistry, we were continually impressed by the fact that we would get large funds for medicine, for surgery, for ophthalmology, and we could specifically get funds for the study of this disease or of that disease, but with great difficulty could we get funds for the basic research and the basic departments from which came the information necessary for the clinicians dealing with specific diseases. So I was greatly heartened when our professor of surgery came to me and said that he wished to contribute from the funds of his department to the support of the departments of biochemistry and physiology, because, said he, "I would not have a great department of surgery if we do not have great departments of physiology and biochemistry and anatomy and pathology."

There was a wise man recognizing that he was standing on the shoulders of others who were occupying less conspicous but just as important positions.

Finally, although funds always look large to me, the son of a poor minister, I can't help but realize that $250 million is not the sum total that you will contribute through such legislation as this. What I have in mind is this: I hear a great deal about the various freedoms which we prize and value, as do you and I. I think one of the greatest freedoms we have, one of the most priceless freedoms of America, is the freedom to exercise our natural instinct for generosity. In no country in the world that I know of do individuals, by their self-willed desire, contribute generously to the support of institutions which benefit our society and their fellowmen. Immigrants come to our shores from other countries where there is not that tradition, and you know that in many, many instances they become among the great benefactors of mankind through their own personal contributions. I think this indicates the innate desire of man to help his fellowman. So I believe that one of the finest things we have in this country is

the generosity which is made evident through the contributions to our educational institutions, the American Cancer Society, the National Foundation for Infantile Paralysis, and all these many other efforts, but the degree to which these funds can be effectively utilized depends in such large measure upon having an adequate core of facilities in which these funds can be utilized. So the matching program is, I think, good, and the facilities which you will provide will make it possible to utilize more effectively the large funds which are given so generously by so many millions of our fellow citizens.

This, I think, Mr. Chairman, is the core of my concern and my enthusiasm for this legislation. I would be glad to answer any questions in the few minutes that I have remaining, if you wish.

The CHAIRMAN. Personally, I express to you my appreciation—and I know it is the appreciation of all members of this subcommittee—for your fine statement and for your enthusiasm. That is one thing which has characterized your appearances before this committee, and we deeply appreciate it. Those of us who were on the committee at the time we reported and passed the National Science Foundation legislation know with what enthusiasm you appeared before the committee and how very practical your suggestions were. It was of great help to the committee. I want the record to show that the committee appreciates that help. We shall be forever indebted to you, also, Dr. Bronk, for the very fine service you rendered this committee last year when you assembled for us a panel on poliomyelitis. We realize it was imposing on you a responsibility which was added to a great many other responsibilities you have but you did a very wonderful piece of work for the committee and I want the record to show also that we appreciate that very fine service.

There may be some questions. You have limited time for them, I am aware. Do you have any questions, Mr. Roberts?

Mr. ROBERTS. I have no questions, Mr. Chairman. I would just like to join the chairman in expressing appreciation of Dr. Bronk's appearance here and his enthusiasm. That is all I have to say.

The CHAIRMAN. This question of enthusiasm impresses me a great deal, particularly from a renowned scientist. Sometimes we are inclined to think that a scientist might become so scientific and enmeshed in scientific phases of his interest that he loses that personal enthusiasm, but that certainly has never been true of you, Dr. Bronk, and that enthusiasm has meant, I think, a great deal to scientific development of this country.

Mr. Heselton, do you have a question?

Mr. HESELTON. I want to say, Dr. Bonk, that I heartily second what the chairman and Mr. Roberts have said about the contribution you have made, particularly to this committee and the whole field in which we have undertaken to pioneer, so to speak, with legislation.

My attention has been called to the report of the Special Committee on Medical Research appointed by the National Science Foundation and the Secretary of Health, Education, and Welfare, with which I am sure you are familiar, and particularly address myself to that part of it from page 42 on under the subject matter of the extramural program.

Have you commented on that phase of the report? If not, do you care to comment?

Dr. BRONK. I have not commented, Mr. Heselton. Perhaps you would be more specific so I could focus my comment, because there are many aspects to that. I could in general say that I think the Department of Health, Education, and Welfare through the National Institutes of Health have done a magnificent thing in carrying forward not only their own intramural activities, the activities within their own Institutes, but have provided funds to institutions and individuals throughout the country to supplement what they themselves can do. This is in the finest American tradition of coupling governmental responsibility with support of responsibility assumed by individuals and private institutions.

Mr. HESELTON. Doctor, if I can be of any help at all, I find on page 48 the Committee says:

> The Committee desires to express two opinions on these bills—

referring to the bills they were considering—

> First, while many medical schools and medical research institutions need better physical facilities for the operation of their present program, this is not their most immediate and pressing need. All surveys of undergraduate and graduate medical education that have been made report that the first requirement of medical schools is unrestricted funds for the operation of their educational programs, if they are to maintain their standards and increase their ability to supply the Nation with the required number of physicians and medical scientists.

That is the first paragraph, and I will read the second brief paragraph after you comment on the first one.

Dr. BRONK. I must say, as one who has dealt with large deficits, I could not disagree with this mild statement as regards the need of our medical institutions for unrestricted funds in support of the core activities of the institutions. This is certainly true. Our commission on the financing of higher education of the American Association of Universities gave great attention to this. As you know, there are many private efforts being made to provide more adequate funds for these general purposes.

It would be difficult to say which is more important. I think the unrestricted funds are absolutely essential. I think we must find ways of putting our medical schools on a sounder financial footing, to have more buildings. Without that is unrealistic and an improper goal. It is my impression that it is increasingly difficult to find funds for buildings and facilities. There was a phase in our American culture where people liked to give buildings which would carry their names or perpetuate their ideals in a symbolic way. This is, I think, less the case now than it was. So it is increasingly difficult to find less the case now than it was. So it is increasingly difficult to find

Mr. HESELTON. May I state at this point, because I know it will come up before us, part of the answer lies probably in the nature of our tax laws which dry up the contributions which used to be made. Another part of the answer, as I understand it, lies in the apparent lack of success of certain voluntary efforts. Even though the recent Ford Foundation gifts were fine and substantial, that is not enough.

Dr. BRONK. That is certainly true, sir.

Mr. HESELTON. I interrupted you.

Dr. BRONK. That, I think, would be my general answer. We certainly need funds to take care of the essential activities of our schools. These are desperately needed. So, also, do we need funds for facilities. Which is more important it varies from school to school, de-

pending upon the flow of funds uniquely applicable to that particular institution. I would say both are needed, and whether one is needed more than the other would depend upon the particular institution.

Mr. HESELTON. That is very helpful. Do you have the report before you now?

Dr. BRONK. I do now, sir.

Mr. HESELTON. Then I do not need to read to you the second recommendation at the top of page 49 with reference to the increasing responsibilities which would be added to the Surgeon General's Office under the terms of the particular bill. I think right along with that goes the recommendation of the Committee as to the creation of a new division, the Office of Medical Research and Training, which appears on page 50. I am sure we would like to have the benefit of your counsel on that phase of it.

Dr. BRONK. As I understand it, the Department has appointed a committee of individuals, including, if I remember correctly, Dr. Piore, formerly chief scientist of the Office of Naval Research, who has experience with the operation of both intramural and extramural programs. This committee is now or will be studying this whole problem of the organization within the Department and I believe that this is a wise thing to do. I think from such recommendations will come administrative decisions which would be sounder than I would feel prepared to make. This was raising a question that seemed pertinent to the committee appointed by the National Science Board, but having called attention to the problem I think the Department of Health, Education, and Welfare is wisely proceeding to consider it and to secure the advice of individuals who are intimately familiar with this type of operation. I would prefer to wait and hear what these wise individuals come up with.

Mr. HESELTON. I can thoroughly understand that. We will hold that question for the Department. Perhaps the report will be available by the time we have finished the hearings. Thank you very much, Doctor.

Mr. DIES. I was much impressed by the soundness of the views you expressed, particularly your observation on that you can't confine research to watertight compartments. It must be broad and bold and unrestricted. I note that in section 702 is an enumeration of the diseases. It says "including" and it doesn't restrict it. It occurs to me it is a mistake to enumerate, for there are a great many other diseases equally important—for instance, the mysterious disease of essential hypertension, which afflicts millions of our fellow citizens. As far as I know, medical science has made very little progress in discovering the cause of it. We have only palliatives to deal with. I would think it would be better not to enumerate them and to leave this broad because the moment you specify certain diseases it carries the implication that you regard those diseases as the most important and that that is where the research should be, violating the very premise which you established in your very fine statement.

I can see no good which can be accomplished by it, and yet it might bring about a great deal of misconstruction because when it comes to administering the act, if you have enumerated the diseases, it gives priority to those diseases. It is just my idea that in this bill we should strike from it the enumeration of the diseases and leave it a broad front for research.

Dr. BRONK. The study of one disease may provide information which will solve another disease. One can never tell. I agree with you completely, sir.

The CHAIRMAN. Mr. Derounian.

Mr. DEROUNIAN. No questions.

The CHAIRMAN. Mr. Hayworth.

Mr. HAYWORTH. No questions.

The CHAIRMAN. Dr. Bronk, we are deeply grateful to you for the time you have given the committee. We hope you will be able now to meet your schedule. I assure you that your views, expressed orally or by telephone or letter or in any other way, are always welcomed by this committee.

Thank you very much.

Dr. BRONK. Thank you, Mr. Chairman. I feel that I would be less than accurate in my expression of feelings if I did not say that I think I can speak on behalf of American citizens in voicing their gratitude to you and this committee for the fine support you have given to what we feel is your and our common effort. I thank you, sir.

The CHAIRMAN. Now, Dr. Coggeshall, if you will return to the stand.

Before we proceed with questioning Dr. Coggeshall, I think in view of some of his testimony and statements made also by Dr. Bronk, we should consider our legislative situation. Last year I introduced a companion bill along with Senator Hill on medical and dental research facilities, and at the same time we both introduced a bill for aid to medical colleges. Our subcommittee held hearings on aid for medical colleges near the end of the session. The Senate committee reported the research facilities bill, and it passed the Senate. So we set hearings on the bill which was most advanced in its legislative procedure.

I mention that situation because it is my feeling—I express it here in the belief that it is entirely feasible—that in the consideration of the bill before us it may very properly be amended by writing into it the provisions dealing with the broader bases of aid to medical colleges which were included in the bill before the committee last year, and also in the bills recommended by the Department which tie both the research facilities and aid to medical colleges generally into one bill.

Mr. Hayworth, a member of the subcommittee, introduced a bill also after he had made some study during the recess last year.

The purpose of making that statement is to indicate that the bill before us, the bill already passed by the Senate, insofar as I can see as chairman, might well become the vehicle for broader legislation as we proceed.

Mr. DIES. Which bill is that?

The CHAIRMAN. That is S. 849.

Mr. DIES. That has already passed the Senate?

The CHAIRMAN. It has passed the Senate. I want to explain that in making this decision it was my own opinion that we should proceed on this bill which has passed the Senate.

Mr. DIES. I believe the gentleman is entirely correct about that because that facilitates our problem very much.

The CHAIRMAN. I have been unofficially assured by Members of the other body, as we refer to them in the House, that if we decide

in our consideration to expand the bill before us to include provisions of the other bills, they would be willing to go to conference on it, and, as you can see, that would expedite it, rather than attempt to go through the entire procedure.

I wanted to make that explanation because I am not one who is wedded to the language of a particular bill. I have tried always, and I think this committee has tried, to do what the committee seems best to do the job which needs to be done.

With that explanation of the parliamentary and legislative situation, we will proceed with any questions that the committee may have of Dr. Coggeshall.

STATEMENT OF DR. LOWELL T. COGGESHALL, SPECIAL ASSISTANT TO THE SECRETARY, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—Resumed

The CHAIRMAN. May I ask you, Doctor, if you have any comment with reference to the suggestion I have just made?

Dr. COGGESHALL. Yes, Mr. Priest. My information about legislative procedure, as you recognize, is rather limited, but from what I do know this is in complete agreement, and I know I can quote the Secretary correctly that that is his attitude. We believe this legislation is important. We are not wedded to any particular words in our bill. We bring up the points that we think are relevant and the best and most effective way to get this legislation is our aim.

The CHAIRMAN. Thank you, Doctor.

Now, Mr. Roberts, do you have some questions?

Mr. HAYWORTH. Would the gentleman yield?

The CHAIRMAN. I yield to the gentleman from Michigan.

Mr. HAYWORTH. I want to clear up my own thinking on this. We would essentially then strike out all after the enacting clause and substitute the general ideas incorporated in your bill and in the Department's bill?

The CHAIRMAN. I have not reached the point of what procedure we might take in the executive session, Mr. Hayworth, but my point of emphasis was that the bill we are considering may be fairly well expanded to include both subjects, that is, the research facilities plus medical school aid or whatever we decide to write into it in the form of amendments, and however we may decide to handle it in executive session. That would be the net result at least. We might write in some of your bill and some of my bill and some of the Department's bill. Whatever we finally decide to do, it can all be done more expeditiously, as I see it, by using this bill as the vehicle for our legislative procedure. Then we would come out, I hope, with a good bill doing a job in both fields.

Mr. HAYWORTH. Thank you. I understand.

The CHAIRMAN. Mr. Roberts, do you have questions?

Mr. ROBERTS. Doctor, do you feel that this approach would have the approval of the medical profession?

Mr. COGGESHALL. Yes, sir; I believe it will, Mr. Roberts. I have made some efforts to ascertain that. The past president of the Association of American Medical Colleges, the institutions where practically all the training and substantial part of the research is done, Dr. Vernon

Lippard, from Yale University, is with us. I think he will attest to that fact. I have had discussions within the week with the official organization of the Medical profession, the American Medical Association, and they approve this. I think those two substantial bodies, including the dentists, do. I know of no opposition. Does that answer your questions, sir?

Mr. ROBERTS. I think that answers my question.

Do you think this approach will encourage a larger number of our young people to go into the scientific field or encourage them to become physicians and dentists?

Dr. COGGESHALL. Yes, sir; I believe it will. I can dwell on that subject for some time, Mr. Roberts. I would give you the following reasons:

If you have an adequately housed group of young men who can be adequately compensated, then they will go into the scientific field. At this period we have reached a point in which medical education has become very expensive. We are not able to accept all those who apply for places. This approach will in my opinion provide additional space not only in existing schools but provide opportunities for those schools which can assemble a competent faculty and resources to start again. If we take this year as an example, I think there are some 2,600,000, perhaps some 2,800,000 young men and women going into higher education. It is projected that within the next 10 years that figure will be in excess of 5 million. Out of that will be a large number, in my opinion, for whom we will have to make provisions if we are adequately to service this country as far as medical service and scientific research in medicine are concerned.

In relation to that point, Mr. Heselton's question a moment ago, "Does this merely provide bricks and mortar, and what about the long report in this connection?" There is a fund to support medical education which this year gave approximately $2,600,000. I believe that is the correct figure. It is called the National Fund for Medical Education. That is money coming from industry and from the doctors, private citizens, and so forth.

I am also privileged to tell you that the Ford Foundation has announced a gift of $90 million for medical education in this country. It is to serve as endowment and not go for construction.

If there are sufficient funds to provide for adequate research housing of the young medical student and dentist, and funds for his research equipment, then many schools will not have to consider further the placing of funds for that purpose and can reserve them to provide for adequate salaries or operating expenses. I think that is one of the important things. So the balanced program I think will provide for the necessary medical and scientific talent we need.

That is a long answer to your question, sir, but there are many facets to it.

Mr. ROBERTS. You feel that this legislation will undoubtedly stimulate private grants?

Dr. COGGESHALL. Yes, sir; I do, such as the Ford Foundation. There will be a national week for medical education soon in which support will be solicited and obtained for medical education. The Commonwealth Fund, one of the larger medical foundations, gave $7 million to several schools last year, unrestricted, except it will not be used for bricks and mortar. I happen to be on a committee of the

American Cancer Society, the chairman of its Medical and Scientific Committee and they have accepted a recommendation to carry forward to their board of directors that a certain percentage of the funds taken by the American Cancer Society be utilized to support basic research and education at the source of all their talent, that is, the medical and dental schools.

So I think on every hand I can see many ways it is already doing it, and I think this would still further increase it, sir.

Mr. ROBERTS. Do you have any knowledge of the advances being made by Russia in this particular field?

Dr. COGGESHALL. Yes, sir; I do. I have two bits of public information. One is a surgeon from the Armed Medical School, Dr. Paul Schafer, Maj. Paul Schafer, formerly on my staff at the University of Chicago, came back, and the other comes from a group of recently returned American scientists from a visit to Russia. The general impression was that they are moving forward in very adequately equipped research and teaching institutions and they are graduating larger numbers from their medical and dental schools than we are. The relative difference is that this last year we graduated in excess of 7,000 doctors in this country. I am not sure how many dentists. They graduated some 22,000 doctors. It is over 20,000. I think 22,000 is the correct figure.

Mr. HESELTON. Would the gentleman yield on that point?

I did not understand you to make any comment as to the quality. Do you have any information as to that?

Dr. COGGESHALL. Second-hand information, sir. As to the quality, they are graduating a large number in a rather abbreviated program that are probably less well qualified than ours. There is a certain segment, they tell me, though, that are equally well qualified, if not better.

Mr. HESELTON. Is my understanding correct, or incorrect, that the emphasis in Russia has been placed on the type of scientific training which lends itself largely to the implements of war rather than to the type of broader effort we make in this country, to spread the approach towards scientific training?

Dr. COGGESHALL. I believe in medicine that is not true, from what I hear from the returning American scientists. But the Russians have taken a very broad approach to their medical problems. Now, what they are doing in relation to potential offense or defense in war, I have no information. I think the important thing I gained from the conversation of Dr. Shafer and some men who recently returned from there, who were sent over to look specifically into the polio and virus field, was the general appreciation manifested by the Soviets to the scientists, and that he was being elevated to a position of great respect in the community. I think that is the most important thing that they are doing, that it is a little more difficult for us to do, and that we certainly have to do in this country by some ways that fall in with our voluntary system. But adequate recognition of the scientists in Russia is one of the strongest features, the one that impressed me most.

Mr. HESELTON. As I understand from reading your statement, there is a question raised as to the geographical distribution provided in section 705 and perhaps other sections of the Senate bill. As I recall it, when we reported favorably the National Science Foundation Act, there was definite recognition by the committee that in order to obtain

general support on the House floor and elsewhere there had to be some attention paid to the fact that the history, perhaps necessarily, of scientific development had been somewhat concentrated on the east coast and on the west coast and in the Midwest and that such institutions as Massachusetts Tech and the one at Chicago and California Tech, and a few others, might qualify as to a large portion of the funds made available under the Foundation to the detriment of developing scientific interests and scientific training throughout the country.

As I have read this provision of the Senate bill, it strikes me that that is perhaps an effort to recognize that, but it strikes me also, if I may be permitted to say so, as rather awkward. Personally, I have no doubt that that is an unwise provision. I thought we spelled it out in the committee report rather better.

The CHAIRMAN. The gentleman is correct. Insofar as the National Science Foundation is concerned, we attempted to and I think we did deal rather effectively with the question of geographic distribution across the country in the committee report. And I think anyone who has kept up with the research grants made by the National Science Foundation perhaps feels that they have done a good job in carrying out what we recommended in the report.

Mr. HESELTON. I agree with you.

The CHAIRMAN. I notice every time I get a list of the awards that they have made, they include little colleges and remote places that many times I had not even heard of before. And yet from some of those laboratories there come very fine contributions.

But you are correct. We dealt with it in the report on the National Science Foundation.

Mr. HESELTON. That was my impression. And in terms of what we have had through page 10 of your formal statement, would it be advisable for us to consider revamping that in line with what we undertook to do in connection with the National Science Foundation?

Dr. COGGESHALL. I think in line with your remarks and the chairman's remarks, the aims of this section were very laudable. In other words, simply because some units had more money immediately available or had perhaps, even, in the opinion of some, a stronger reputation, they might get most of the funds. However, I think along with your recommendations as to the National Science Foundation, which will be very helpful, this can be taken care of by a very sound council that allocates these grants. The important thing they must do would be not to see that all the funds went to 1 school or 1 area.

Now, as Dr. Bronk has just said, the pattern followed by the advisory councils in selecting research grants from all over the country has a very fine record. I think that a council appointed similarly would have exactly the same performance.

Mr. HESELTON. You have led to a question I wanted to ask. But before asking it, I am not too clear whether you feel that we should rest upon the personnel of the Council if your other recommendation is accepted, or whether we would be wise to go back to what we undertook to do by some reference in the committee report and possibly striking out the section.

Dr. COGGESHALL. I think I would be a little more clear if I knew the specific reference you were referring to in your committee report, that I do not happen to have before me.

Mr. HESELTON. Let me say that in the chairman's bill, H. R. 9013, on page 6, there is language in 703 (b) which I think would determine it:

> In determining the order in which applications shall be approved, the Surgeon General shall take into consideration the relative effectiveness of the proposed facilities in expanding medical or dental research or teaching capacity, in improving the quality of such research or teaching, or in promoting a more effective geographical distribution of such research or teaching, and other factors relevant to the purposes of this title, as may be prescribed by regulation.

It seems to me that is a much sounder approach than an effort to establish frozen categories, four sections of the country, and insist you must have 80 percent or nothing.

Dr. COGGESHALL. That is right.

The CAIRMAN. If you will yield just for one question, on that subject. I think we shall consider that the Senate bill and the bill which I introduced last year, contemplated a 3-year program of a total of $90 million for 3 years. Because of the limited nature of the program there might have been more reason for setting up some kind of a formula. If this legislation is expanded as I hope it will be, to a 5-year program, for example, of $250 million, or a figure near that, for the total, then I think that it would probably solve the question. The question would be solved in the administration of it rather than attempting to deal with it by geographical boundaries.

Dr. COGGESHALL. Yes, sir. I agree.

The CHAIRMAN. I think the difference in the 3-year program of $90 million and a more expanded program with a larger amount of money, total, would make some difference. Do you agree, doctor?

Dr. COGGESHALL. I quite agree with that completely, sir.

Mr. HESELTON. May I ask this question, on your fourth comment on page 10 and running over to 11. You have two recommendations, as I understand it.

> Fourth, we have some reservations with respect to the composition of the proposed National Council on Medical Research Facilities, which under S. 849 would consist principally of representatives of each of the present national advisory councils "attached to the National Institutes of Health." We are in accord with the principle of coordinating research construction grant objectives and policies with those of existing research and training grant programs, but we question the wisdom of placing the primary burden on selected representatives of the existing councils—although, because of their imminence in their respective fields, persons appointed to such councils should not be precluded from serving on the research facilities.

Then you go on to say:

> We also believe that a somewhat larger council than the one prescribed in S. 849 would be desirable in order to provide a broader representation from the various fields of research and training affected.

Do you care to be more specific on that?

Dr. COGGESHALL. Yes; I would be very happy to.

My thinking on that particular point was this: that we are suggesting that a better approach, as Dr. Bronk has already testified, be provided; that research is not a specific effort toward an attack on a specific disease; that in the long run this country will be better off if we consider the young men coming into the basic science laboratories and going on through.

Now, the original bill was entirely research. We would think that this committee should be broadened, because if you take in research

and training it would have more people concerned with medical education and training. It would bring in people that have construction experience, hospital and research facility construction experience. Secondly, these committee members on the council, the council members—and Dr. Bronk happens to be a member of the National Cancer Advisory Health Council—worked very hard several days here. Now, I would envision that several of these council members would have to make onsite visits, and this is a very important talent that we are utilizing here, and it is to expand the talent, share the load, to get a better job done and bring in more representation.

Mr. HESELTON. On that second point, do you have in mind how much larger the council should be than the one suggested in 705?

Dr. COGGESHALL. I had not thought of that, sir. I would think that some number not less than 12 and up to 20 members would probably handle the job sufficiently, at least if they had the privilege of appointing subcommittees. I would not like to be final on that point, but it would seem to me so.

Mr. HESELTON. Would the Department be willing to develop language for our consideration in connection with this particular section?

Dr. COGGESHALL. Yes, sir.

Mr. HESELTON. You spoke of the $90 million that the Ford Foundation had, I understood, recently announced.

Dr. COGGESHALL. The exact status of that $90 million is that they have announced that they will give that as endowment to support medical education. They are appointing a committee that is going into operation within a week to decide the exact pattern of distribution, and they will probably make these funds available by the end of this year.

Mr. HESELTON. The end of this year?

Dr. COGGESHALL. The end of this year, sir. They hope to.

Mr. HESELTON. That is calendar year?

Dr. COGGESHALL. Yes, sir. Calendar year, by December 31, 1956, so I understand.

Mr. HESELTON. That is in addition to what they have done so far as the grants for additional salaries are concerned?

Dr. COGGESHALL. That is right. This $90 million is strictly and specifically medical education, sir.

Mr. HESELTON. It occurs to me that a question may arise, and it certainly arises in my mind and I think may well be a point we will have to handle on the floor, is as to what has been the recent experience as to these various efforts to be of assistance to the medical and dental colleges, in terms of private endeavors, in terms of industrial contributions, in terms of governmental contributions, and so forth. I wonder if the Department has available or could make available some sort of a brief summary showing the brief history of what has been done and what has been accomplished, let us say, in the last 2 or 3 years, more if you want to make it that, and if you could contrast that with what was reported to you to be the needs of the medical and dental schools, so that we would have something to tie into in terms of the question that is going to be asked, why it is that voluntary efforts can succeed in this country.

Dr. COGGESHALL. We would be very happy to provide that information for you, sir. I think that fragments are available today with Dr. Lippard and others who will follow me here. And that is a very im-

portant point in my consideration. Because in providing for this type of legislation, and wishing to have it enacted, that was one point that we had to be sure of ourselves. We could not injure a system of education by providing a more expensive unit when they could not afford to go on. We believe that we have the evidence to substantiate our judgment that this bill will be helpful. We will provide the data.

(In response to Representative Heselton's request for information on the amount of private gifts and contributions toward the financing of medical school needs, the following information has been supplied by Dr. Coggeshall:)

The Council on Medical Education and Hospitals of the American Medical Association reports on the basis of a questionnaire survey that for the academic year 1955–56 approximately $24.8 million or 25.3 percent of the basic operating budgets of the medical schools (exclusive of research budgeted separately) is estimated to come from endowment income and gifts, grants and sources other than Government appropriations, tuition income or general university funds.

An additional approximately $47 million spent on medical research in 1955 was financed by philanthropic giving and endowment and other income. These sources accounted for nearly 20 cents of each $1 spent on medical research during the year ($240 million). About one-quarter of medical research is conducted in medical schools. Industrial and Government laboratories account for upward of 55 percent of the research work done.

The National Fund for Medical Education in 1955 granted $2,700,000 to the Nation's medical schools for current operation bringing to almost $10 million the total distributed since the initial grants were made in 1951. Large additional grants have recently been announced by the Commonwealth Fund and the Ford Foundation. The $7,150,000 contributed by the Commonwealth Fund was given as an unconditional grant, and the $90 million grant by the Ford Foundation is to be an endowment fund for teaching salaries. The Ford Foundation has also announced a grant to be given over a 5 to 10 year period to the National Fund for Medical Education under a sliding formula by which the Ford Foundation will partially match funds solicited by the National Fund from large corporations.

A 1953 survey of medical school needs for operating funds sets these fund requirements at an additional $21,600,000 per annum. A part of these requirements will be met by the recent Foundation grants and the continued support granted by the National Fund for Medical Education.

Data are not available on the source of funds used to finance the construction of medical school teaching and research facilities. In the academic year 1954–55 almost $47 million of construction was completed and an additional $60 million in construction was initiated.

Dr. Vernon W. Lippard, of the Association of American Medical Colleges, in his testimony before this committee in April 1956 reported school construction needs (based on reports from 77 schools) at $460 million. It is estimated that some $122 million of this total is to be financed from private sources.

Mr. HESELTON. I think in the course of one of our hearings within the last year or two there was some testimony presented to us of the efforts made generally by several groups, such as the Poliomyelitis Foundation and the Heart Foundation and now the current cancer drive, and others, broken down to show what they had done in terms of research grants. If I have not made it clear, I would like to see that taken as a basis and brought up to date.

Dr. COGGESHALL. I understand what you wish, and we will get it for you. We have some information here this morning. But I would like to follow your suggestion and present something more specific and over a period of years.

Mr. HESELTON. I think it would be helpful. Thank you very much.

The CHAIRMAN. Mr. Hayworth?

Mr. HAYWORTH. Dr. Coggeshall, in connection with the question, which Mr. Heselton asked a few moments ago, about the number on

the council, it occurred to me that it might be helpful to have an expandable council, in other words, one which would have not less than 12 members, perhaps, but which could be added to by the Surgeon General as the administration of the act proceeded; so that if it was found desirable to have another person in another part of the country perhaps than those decided upon at the beginning of the administration of the act, he could then add more members up to, we might say, 20.

Dr. COGGESHALL. I think that would be a very useful provision, and I attempted to portray that in my statement a moment ago, when I referred to subcommittees. I think that if it was written into the bill that there be a committee of not less nor more than, with appropriate consultants, then that would handle the situation satisfactorily and be a very useful device.

Mr. HAYWORTH. For the purpose of having this in the record, I would like to ask you whether or not it is customary for various foundations and institutes and associations to do their own research in, say, poliomyelitis, or whether they farm it out to other organizations.

Dr. COGGESHALL. The American Cancer Society, the National Fund for Poliomyelitis, the American Heart Association, are the three major ones, and all other ones I know of give grants in aid and farm it out, mostly in colleges and universities.

Mr. HAYWORTH. In other words, they do not have their own plants or their own facilities for research work.

Mr. COGGESHALL. They do not so far as my knowledge. I know of none.

Mr. HAYWORTH. And therefore in the introduction of this act, where it mentions these various diseases, such as tuberculosis and multiple sclerosis, heart disease, and so forth, it would be impossible or impracticable to make grants to these associations or foundations for their own use to put up buildings.

Dr. COGGESHALL. That is right. They could only act as an intermediary organization. If they accepted them, they would have to transmit the funds on to research laboratories, most of which are in universities.

Mr. HAYWORTH. The last comment I would like to make is that although there may be some apply—need for physical plants I assume is to be paralleled by the need for people to go into those plants. I have reference to the need for more scientists, more young people going into the field of science. I assume you would look with great favor on any legislation that could be devised that would be useful in encouraging people to go into science.

Dr. COGGESHALL. Well, you say "any legislation." I am not sure as to any legislation. But I would certainly like to see appropriate legislation that would provide broad support for research scientists, preferably not to study heart or cancer per se, but fellowships, scholarships, that type of aid, I think would be very useful. I think we need it. And if we are going to get the amount that apparently seems to be indicated, based on curves of past experience, we are going to have more fellowships and grants-in-aid from both private and Federal funds than we will have shops to take care of them.

Mr. HAYWORTH. That is all.

76924—56——3

The CHAIRMAN. Mr. Derounian?

Mr. DEROUNIAN. Dr. Coggeshall, a few moments ago you talked about a conversation with Major Shafer, who had been over to Russia, where he looked at their dental facilities for education. Did you ask him whether he had observed the state of the Russian citizens' teeth while he was there?

Dr. COGGESHALL. No, sir. That was not one subject that we discussed. I only had a few minutes to talk with him personally after his formal talk.

Mr. DEROUNIAN. Several of us on this committee visited the Soviet Union this past fall. And I think it is fair to say that all of us would agree that almost every Russian's mouth had at least one steel-capped tooth in there. And from our observation, their teeth were in a horrible state, with crude dentures where they were needed. So that if they are making progress, they certainly are not applying it to their citizenry. I just wanted to bring that part of the information into balance so that we would not think they are doing a raving job over there.

Dr. COGGESHALL. May I comment upon that point? I did not want to leave the impression that they were making great scientific progress. I did not get that from him. What I did get from him was an attitude of great support for scientists in their country, that instead of being a backward nation relative to our own they were making great strides in the attention and respect they were giving to that.

Mr. DEROUNIAN. Have you had communications from the president of Cornell University?

Dr. COGGESHALL. I have seen them.

Mr. DEROUNIAN. He wrote to me some time ago about the program generally, and he was quite positive about the fact that we are wasting money on this program; that medical schools generally do not need the grants. Would you have any comment on that?

Dr. COGGESHALL. Yes, sir. I would not want to embarrass any of my good friends at Cornell, so I won't bring their names into the discussion. But I do know of three university presidents who believe that this type of support is unwarranted. I happen to have a document before me—because I just saw the letter of the president of Cornell last week—and it appears that the American Council on Education, that is composed of some thousand institutions of higher learning, of which the president of Cornell is a member, stated in their issue of February 17 of their official publication, Higher Education, that the construction program of the Department of Health, Education, and Welfare, as outlined, was acceptable to them, and they endorsed it. And here, reading on March 19, 1956, it says:

> The program of construction grants for medical and dental research and teaching facilities proposed by the Department of Health, Education, and Welfare, and endorsed by the Council's Committee on Relationships of Higher Education to the Federal Government, is authorized.

We have in the Department unsolicited letters from, I think, some 20 presidents or chancellors of universities, stating that they believe this support is needed. I have a list of them here somewhere. Included are the University of Southern California, Vanderbilt, Wisconsin, Emory, Wayne, Colorado, Yale, Louisville, Western Reserve, Cincinnati, Buffalo, Tulane, Pennsylvania, Stamford, Minnestoa.

There was a survey made in 1953, I believe, in which 96 percent of the deans stated that their institutions favored this. There was some comment that the presidents did not agree although I believe this is not true—except for an occasional instance.

Mr. DEROUNIAN. You would say, then, that this was just a matter of difference of opinion regarding the philosophy of the subject.

Dr. COGGESHALL. That is right.

Mr. DEROUNIAN. Thank you very much, Doctor.

The CHAIRMAN. Doctor, just one further question. If this bill may be expanded as we have discussed this morning to include training and other facilities, is it your opinion that a 5-year program, with a total for the 5 years of $250 million, is approximately what we should strive for?

Dr. COGGESHALL. Yes, sir, I believe so. We have made 2 or 3 surveys. When I say "we," I refer to the Associaion of American Medical Colleges. And again, Dr. Lippard I believe has these figures at hand. And they come out just about this amount.

We believe the 5-year period is best, because some of the schools that need facilities very badly will have the most difficult time raising matching funds. And so this period or longer is necessary.

There is on indeterminate factor, and that is that since matching funds are required we do not know and cannot find now precisely how much is available. But we believe there is a very close approximation to our needs.

The CHAIRMAN. Thank you very much, Doctor.

We have a little time left, and it will be necessary because of legislation on the floor for the committee to adjourn promptly at 12, but we are very happy this morning to have present Dr. Vernon Lippard, dean of the Yale University School of Medicine and retiring president of the Association of American Medical Colleges, and also Dr. Walter A. Bloedorn, dean of George Washington University School of Medicine, who appeared before our subcommittee as I recall, last year.

In the remaining time, I hope we may be able to receive these statements, dividing the time between you gentlemen.

Dr. Lippard, do you care to make a statement at this time? We are very happy to have you here, sir.

STATEMENT OF DR. VERNON LIPPARD, DEAN, YALE UNIVERSITY SCHOOL OF MEDICINE, AND RETIRING PRESIDENT, ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Dr. LIPPARD. Thank you, sir.

Mr. Priest, I shall make my statement very brief, because I would like to go on record at the very beginning as being heartily in accord with the statements made by Dr. Coggeshall and Dr. Bronk, and I think it would be a waste of your time for me to repeat much of what they have said, despite the fact that I am deeply sympathetic with it all.

I will read a somewhat abbreviated statement that I have prepared.

My name is Vernon W. Lippard, dean of the School of Medicine at Yale University, past president of the Association of American Medical Colleges, and a member of its Committee on Financing

Medical Education. As a representative of the association, I speak for the 85 medical schools and the universities with which they are affiliated.

Each of these schools has responsibilities in the training of physicians and medical scientists. The major portion of medical research in progress in this country is being conducted in the medical schools and their affiliated hospitals. The same people and the same facilities are used for both purposes, namely, the conduct of research and the training of research physicians and scientists, and the two functions cannot easily be divided.

Although the production of practicing physicians to meet the expanding requirements of our country is an important function of our medical schools; they have other responsibilities of equal significance. Some of the medical students in each class will become investigators. Side by side with them are candidates for the Ph. D. degree in more highly specialized fields of medical science, such as biochemistry, physiology, and pharmacology, who will also staff the medical research laboratories in universities and research institutes. There is no other source of this talent.

Training for a career in research usually extends beyond the period of candidacy for a doctoral degree, either M. D. or Pr. D., and our laboratories are crowded with young men in the process of learning research methods under the guidance of our faculties. This year at Yale we have 63 such men on post doctoral fellowships—the number equivalent of almost an additional class in the medical school. I mention this only to show you the magnitude of this problem.

These training activities progress hand in hand with the actual conduct of research, because the two cannot be separated. Medicine in general and medical research in particular is not taught in classrooms but in the laboratories where the research is going on. Furthermore, the best of instruction in either the laboratories or the hospital wards and clinics is offered by men stimulated by day-to-day participation in the advancement of knowledge.

Our medical school laboratories have been the source of many of the primary advances in the prevention and cure of disease over the past several years. I cite, for example, the work of Enders and his colleagues at Harvard, Salk at the University of Pittsburgh, and many others, in the development of the vaccine for poliomyelitis. The commercial development and production on a large scale usually takes place in the laboratories of the pharmaceutical manufacturer, but the basic studies leading to practical application are carried out by the often unheralded faculty member.

To meet our obligation to train practicing physicians and the men who will do the research in the next generation, and to carry out the research, new schools must be established, must have more space in which to operate and antiquated facilities must be brought up to date—perhaps "obsolete" would be a better word than "antiquated" in many of these situations—so that they may be used more effectively and more efficiently. The total amount existing medical schools would need for construction over the next 5 years is estimated to be about $460 million, of which about one-half would be needed from the Federal Government. The schools estimate that they could raise approximately the other half. And I think that is one of the principal reasons

why the duration of this appropriation should be over a long period. There is not going to be an easy job. And I think that some of the schools which need the help and some of the research institutes which need the help most may be the ones that will have the greatest difficulty in raising this money quickly. And therefore I think a 5-year period rather than a 3 would achieve the results that we are all looking for more effectively.

Additional amounts are needed for other research facilities and schools of dentistry and public health. I have no specific figures relating to those institutions. I think it would be perfectly conservative to say that a total of somewhat more than $500 million would be needed in all of these categories, and if it were on a matching basis an appropriation of something like $250 million would go a long way toward doing the job.

Facilities for research and training of researchers is the bottleneck in the entire health program. Over the next several years, brilliant young men and women will be available for training in increasing numbers. Public and private support for materials, equipment, and technical assistance is becoming available in increasing amounts. Funds for construction are not available.

This bottleneck can be broken by the legislation under consideration here today, and with minor revisions along the lines suggested by Dr. Coggeshall this legislation certainly has the wholehearted support of the Association of American Medical Colleges and its constituent schools.

The CHAIRMAN. Thank you very much, Dr. Lippard.

Are there any questions?

Mr. ROBERTS. Mr. Chairman, I was interested in one statement that Dr. Lippard made, as well as his entire statement.

The statement you make is that the bottleneck can be broken by this legislation. And that brings to my mind this question: Do you feel that by providing these adequate facilities we can count on enough of these young men and women to come into this field, without any further effort?

Dr. LIPPARD. I think that we are going to find, as the figures have been quoted—and we are familiar with the tremendous increase in enrollment in the colleges which may be anticipated over the next few years—that even if we maintain the same proportion of people going into medicine and medical science, we would almost double the number we now have.

Mr. ROBERTS. At the present rate?

Dr. LIPPARD. Yes. So I feel that this is really the time of all times when this kind of support is necessary. Because if we are to take advantage of the enthusiasm of this increasing number of college students who will, I think, want to go into the medical sciences, we have to have a place to put them. We can't hang them from the rafters. And the medical schools in general have expanded their enrollment in order to take care of demands, to the point where they are just jammed now. Any hope of expansion in numbers of people in any of these categories being trained as practicing physicians, as medical scientists, predoctoral, postdoctoral, and so on, requires more space and facilities, basic facilities. Just the benches and the refrigerators and things to work with.

Mr. ROBERTS. Most of these voluntary or private contributions—are they generally accompanied by a number of scholarships that are available for young people without means to further their own training?

Dr. LIPPARD. You mean from the national organizations, such as the American Heart Association, Cancer, and so on?

Mr. ROBERTS. Yes.

Dr. LIPPARD. They expend little and some of them none of their money on scholarships at the predoctoral level, that is, for candidates for the M. D. or Ph. D. degrees in the medical sciences. Most of them do provide some support for postdoctoral fellowships. The man having received the doctoral degree comes in and learns more specifically the laboratory methods within a rather limited field, usually in relation to the interest of the organization giving the fellowship. But they do not give money for the place for them to work.

Mr. HESELTON. Doctor, on that figure of $460 million or $500 million I assume that has been built up from the figures for each existing institution or any projected institution. Could that detail be furnished to the committee?

I think it would be helpful if you would do so.

Secondly, I was not too clear as to one reference. I understood the reference as to improving existing facilities and even replacing obsolete facilities. But I am not too clear what you meant by additional institutions. As I understood it, the institutional problem at one time was a very serious one. I have not been aware of the fact that there was any great interest in new institutions as such, but rather in expanding existing institutions. Would you care to comment on that?

Dr. LIPPARD. Yes, sir. There are a number of medical schools in the process of development at this time. There are now 81 fully approved operating schools, and there are 5 or 6 which have students but have yet not graduated their first class and are therefore not classified as fully accredited, and so on. That is just a technicality. And there are new schools in the process of very early development. In the State of Kentucky, at the University of Kentucky, for example; and in New York City, this Albert Einstein Center; at the University of Florida at Gainesville. And Seaton Hall in New Jersey, at Jersey City. So new medical schools are coming along at a fairly reasonable pace. We are not going into a serious inflation, I don't think.

Mr. HESELTON. Do you think that emphasis upon new schools, new medical schools, might tend to increase the desire to have medical schools where they were needed or not? I mean by that: Are we running the risk of not doing what is necessary in the existing institutions which obviously need help and need it now, and not 5 years from now?

Dr. LIPPARD. I think that the opportunity for new schools in the process of development to participate in these construction grants should be provided, and I would leave it to the good judgment of your counsel as to whether they are being established under the kind of auspices and so on that would lead one to expect that the results would be good. If a good substantial university is ready to embark on a program of medical education, willing to put its own funds into it, and so on, I would be inclined to support them. On the other hand, I don't think there is danger probably of the diploma-mill type of schools starting, such as existed a century ago, largely because of the expense

involved. It would be a little different if the Government were offering 100 percent.

Mr. HESELTON. You have a situation I am certainly well aware of in New England, where the emphasis has been on the private colleges and universities rather than the State-supported institutions, although, as we both know, the State-supported institutions have become increasingly important, serving a very real function in providing facilities for young people who otherwise would never have their opportunity. As you know, there was some agitation as to the medical school connection with the University of Massachusetts. I do not recall the result. Running through my mind is the question whether, confronted as we are with the obvious need for existing medical schools, we would be borrowing trouble in not specifically meeting this problem by adding another category and encouraging the creation of new schools, which would have to be, if our friends on the Appropriations Committee put a limit on it, at the expense of existing schools. I just throw that out as a problem which will undoubtedly meet us at some time. I do not expect you to comment on that.

The CHAIRMAN. We have a few moments more, and we will ask Dr. Bloedorn to come forward.

STATEMENT OF DR. WALTER A. BLOEDORN, DEAN, GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, WASHINGTON, D. C.

Dr. BLOEDORN. Thank you, Mr. Chairman. My remarks will be very brief, in view of the fact that you will adjourn shortly.

First, let me state that I would like to endorse the statements made by the preceding witnesses, Dr. Coggeshall and Dr. Lippard.

The association between research and teaching has been emphasized, and it is impossible to separate them. Most of the research that goes on is conducted in medical schools and their affiliated hospitals and research laboratories.

The need for modernization of existing medical plants is urgent. With few exceptions, which probably could be named on the fingers of one hand, there has been little in the way of construction of new plants or modernization of existing plants.

As an example, we are operating our own school here in the District in a physical plant that is 50 years old, and which is accommodating twice the number of medical students that it did 50 years ago.

I am heartily in accord with your suggestion, sir, that this House bill S. 849 be modified and enlarged to include teaching facilities.

The CHAIRMAN. Doctor, one question on that very point. And this is a question that we will have to come to some conclusion on. The bill before us last year on which you testified, aid for medical colleges, provided $50 million a year for medical schools and $10 million a year for dental schools over a 5-year period. The research bill, which has passed the Senate and is a companion bill to one that I introduced last year also, provided authorization for $90 million over a 3-year period, $30 million a year. Now, if we took the figure of the bills that were considered by the subcommittee last year on aid to medical education generally, took that total plus $90 million in the Senate bill, the Senate-passed bill, for research facilities, we get a total there over a 5-year

period, if you put it on that basis, of $390 million. I wonder if you have any feeling of your own as to whether $250 million, let us say, for the total program, would be adequate, or if it would be increased beyond that figure over a 5-year period, if we combine the two programs.

Dr. BLOEDORN. I have a feeling that the program would be adequate, in view of the fact that there would undoubtedly be a necessity for matching funds for medical construction.

The CHAIRMAN. That would be a requirement; yes.

Dr. BLOEDORN. I would consider it adequate.

The CHAIRMAN. Do you think that would be adequate over a 5-year period?

Dr. BLOEDORN. Yes, sir.

The CHAIRMAN. Are there any other questions?

We thank you very much, Doctor.

Before the committee adjourns, the Chair will ask unanimous consent to insert in the record at this point a statement from the National Tuberculosis Association in support of the legislation.

(The statement referred to follows:)

NATIONAL TUBERCULOSIS ASSOCIATION,
New York, N. Y., April 10, 1956.

Hon. J. PERCY PRIEST,
Chairman, House Committee on Interstate and Foreign Commerce,
House Office Building, Washington, D. C.

DEAR CONGRESSMAN PRIEST: As a member of the board of directors of the National Tuberculosis Association and chairman of its committee concerned with Federal legislative matters, I would like to take this opportunity to comment on S. 849, a bill introduced for the purpose of extending the medical research program. The discovery of isoniazid in 1952 for treatment of tuberculous patients and the reports on the Salk vaccine for polio certainly indicate the enormous contribution research has made and is making to the health and well-being of our people. We are in complete agreement with the importance of expansion of the medical research program, and we are happy to see that tuberculosis is included in the list of diseases for which it is proposed that funds for research facilities may be provided.

The National Tuberculosis Association, a voluntary organization composed of medical and lay persons interested in the control of tuberculosis, has for the past 52 years worked closely with official and voluntary agencies in support of tuberculosis research as well as other aspects of tuberculosis control. It has conducted its own modest grant program for medical research for the past 35 years, assisting several hundred investigators in the pursuit of studies in tuberculosis and related fields. It has, however, never had enough funds to support construction of facilities, and believes that this bill would provide funds in a much-needed area.

Our organization believes that the dramatic decline in the death rate from tuberculosis has been made possible largely through the application of the knowledge derived from research in drug therapy and surgery. It has, however, not lost sight of the stark facts related to the human suffering and economic loss caused by the disease; namely, that it killed an estimated 16,000 persons in 1955, that there are 400,000 persons estimated to have active tuberculosis of which more than 100,000 are occupying beds in hospitals, and that the economic toll it takes is estimated to cost the American people over $600 million each year in direct cash expenses.

Further research is necessary if we are to advance in our knowledge and management of this disease. There are still innumerable problems which can only be solved by an intensity of effort, a diversity of approach and widespread interest of scientists in tuberculosis research. Toward that end the National Tuberculosis Association in the past year has encouraged its 3,000 State and local associations to budget more funds for research purposes. We believe that medical research should be given impetus now when we know both so much and so little about the disease.

We do not know as much as needs to be known about the tubercle bacillus itself. While we recognize wide variations in virulence, drug susceptibility, needs for growth and other factors, there is still not enough understanding of these questions. Improved techniques brought about by scientific advances can certainly be utilized for the investigation of the tubercle bacillus.

Even with respect to drug therapy in which the greatest advances have been made in the tuberculosis field, there are still many questions for which we have yet to find an answer. The drugs we have are slow in their action, must be given for many months, do not kill the germs in the doses that can be used and are toxic to many patients. We would like to know what is the optimum drug dosage, what are their effects on immunity and tuberculin sensitivity, how the drugs actually work. Further investigation is needed which will make drugs less toxic and more powerful.

There is also need for investigation of the relationship between nutrition and tuberculosis. While it has been assumed that there is a direct relationship between the two, there has been very little research and we have little knowledge concerning the specific nutrients which protect us from the disease or assist in recovery from it.

Work must also continue to find ways of increasing the resistance of the population against the disease. Much has been done in the field of immunity and resistance to tuberculosis, and attempts to develop a vaccine more effective than now available are in progress. Further efforts are certainly justified with participation by more scientists in related fields. We believe that more consideration should be given to the use of special tools, such as the electron microscope, radioactive isotopes, and other technical advances for research in tuberculosis by those who are adept in their use.

May we also point out that while rapid progress in the control of tuberculosis has been made in this country, it remains the major public health problem in a large part of the world. Its communicability, its chronicity, and its extensive economic toll demand that research efforts be enlarged. The fruits of this research must continue to be shared with the rest of the world, growing smaller and more interdependent, if we are gradually to eliminate the ravages of disease from this earth. We should never lose sight of the benefits accruing from our efforts on an international level. We cannot overemphasize the importance of increasing and maintaining the resistance of our population and the world's population against this disease.

The above discussion points out some of the reasons why we believe this bill would make possible the vitally necessary improvement and expansion of facilities which are not now provided. It would lead to encouragement of researchers in this important disease area.

The National Tuberculosis Association believes that tuberculosis can eventually be eradicated, resulting in an end to the suffering and the economic loss now caused by this disease. If we are to accept our full responsibility for the prevention of illness and death from tuberculosis, it is essential that we take advantage of the opportunities for further rapid development in the knowledge of this disease. With the impetus that this bill will provide, we can look forward to the eradication of tuberculosis in a much shorter time than may now seem possible.

We would appreciate the recording of this letter in the report of the hearings.

Very truly yours,

JOSEPH B. STOCKLEN, M. D.,
Chairman, Committee on Cooperation With Federal Agencies.

The CHAIRMAN. Also a telegram from Mr. Mike Gorman, Mrs. Albert D. Lasker, and Mrs. Florence Mahoney of the National Mental Health Committee, in support of this legislation.

(The telegram referred to follows:)

WASHINGTON, D. C., *July 22, 1955.*

Hon. J. PERCY PRIEST,
House Office Building, Washington, D. C.:

Strongly urge your support of the Medical Research Act of 1955, H. R. 3459 (Priest) and H. R. 4114 (Wolverton) companion bill on Senate side, S. 849, unanimously passed by that body on July 18. Since National Institute of Mental Health was set up by law in 1946 it has not received 1 cent of research construction money. At present there are on file with the institute applications for psychiatric research construction grants totalling over $22 million from hard

pressed nonprofit foundations, medical schools and hospitals all over the country. In testimony before the Senate Subcommittee on Health this year, officials of the American Psychiatric Association pointed out that scores of research projects were being held up because of lack of laboratory facilities. They also reported alarming loss of psychiatric research workers because of same lack of facilities. In a speech on the floor of the House on July 20 Congressman Fogarty singled out research facilities as the biggest single bottleneck to fur- their medical research. Of psychiatric research he said, "Research programs are young in this field and facilities are inadequate," therefore, respectfully urge you to report this emergency bill to the floor.

MIKE GORMAN,
Executive Director,
Mrs. ALBERT D. LASKER,
Co-Chairman,
Mrs. FLORENCE MAHONEY,
Co-Chairman,
National Mental Health Committee, Inc.

The CHAIRMAN. From Mrs. Anna M. Rosenberg, Co-chairman of the National Heart Committee, a telegram.

(The telegram referred to follows:)

NEW YORK, N. Y., *July 22, 1955.*

Hon. J. PERCY PRIEST,
House Office Building, Washington, D. C.:

Now that S. 849 the Senate bill to provide funds for the construction of research facilities has been passed by the Senate won't you rge your committee to report H. R. 3459. Funds to increase research laboratory space are urgently needed in our fight against cancer, heart disease, mental illness, and the other main killing and crippling diseases and prompt action by the House could make these funds available for this year. The United States Public Health Service has on hand applications from 98 medical research centers for research laboratory construction aid.

ANNA M. ROSENBERG,
Co-Chairman, the National Heart Committee.

The CHAIRMAN. Another telegram from Charles Schepens, M. D., director, the Retina Foundation of Boston, Mass., supporting the research facilities.

(The telegram referred to follows:)

BOSTON, MASS., *July 22, 1955.*

Congressman J. P. PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives:

Importance of Federal assistance to private nonprofit institutions for construction of medical research facilities cannot be overstressed. We laud your traditional leadership in these matters and strongly urge your committee's favorable consideration of Medical Research Act of 1955, S. 849, as amended, and passed by Senate July 18. We are on record in support before Senate Labor and Public Welfare Committee.

CHARLES SCHEPENS, M. D.,
Director, The Retina Foundation.

The CHAIRMAN. And a statement from J. M. Ulmer, of Cleveland, Ohio, in support of this legislation. Mr. Ulmer, I am sure, because of past appearances before this committee, is greatly interested in legislation that would provide research in the field of blindness.

(The statement referred to follows:)

STATEMENT OF J. M. ULMER, CLEVELAND, OHIO

Mr. Chairman and members of the committee, my name is J. M. Ulmer, 1130 B. F. Keith Building, Cleveland, Ohio, where I practice law. For more than 8 years, as a layman, and at my own expense (and because for nearly 2 years my vision was impaired to the point where I could not read a line), I have

devoted myself to helping bring about research in the field of ophthalmology. I had the honor to serve for a period of 3 years in the Public Health Service as a member of the Surgeon General's Advisory Council of the Neurological Diseases and Blindness Institute. I am secretary of the National Foundation for Eye Research, a voluntary organization which has for its only purpose the advancement of the cause of research in the blinding eye diseases field. Because of the shortness of time and not having had the opportunity of clearing this presentation with the members of the board of this foundation, I make this statement as an individual.

The blinding eye diseases affect a great segment of the population and constitute an extremely serious public health problem. Most of the causes of these disease are unknown to science. The legislation under discussion by this committee has to do with the providing of funds to be used to construct greatly needed non-Federal medical research institutions.

If the existing eye research laboratories are expanded and additional ones are built, fundamental research can go forward to find the answer to the question: "Why blindness?"

Through the generosity of the Bok Foundation, and at great expense, the American Foundation, over a period of 15 years, conducted a study of the problems concerning medical research. This exhaustive and outstanding survey should be read by every Member of the Congress so he may appreciate the seriousness of advancing medical knowledge and the part that fundamental research plays in the important field of diseases which affect our citizens.

Every bit of knowledge gained through research contributes to the total sum of knowledge and eventually provides the basis for practical application thereof, or for further additional research to gain further knowledge in the biological, physical, and medical sciences.

These complex problems will only be solved by intensive fundamental and basic research. Dedicated scientists will help find the answer to "unknown to science" and thus the cure and prevention of those diseases which afflict mankind.

For the first time in history there is a growing acceptance that in a very genuine and realistic sense, knowledge is power. To advance the well-being of the people, Congress must provide the funds, in part, to help construct medical research facilities. Medical miracles do not suddenly happen. These are the results of the application of knowledge, applied by dedicated men in the laboratories, who give their lives to fundamental research. Basic research is the safest and most direct road to the solution of the outstanding problems of medicine, resulting in the advancement of the health of the people. Funds must be provided by the Congress for this purpose.

At the recent Geneva Atoms for Peace Conference, one of the Soviet scientists told of a huge atom machine which outclasses anything the West now has and stated that the magnet in this instrument alone took 36,000 tons of steel. Ernest O. Lawrence, the American expert on atom smashers, who was present, just gasped, so enormous was the size. Someone asked how the Soviet scientists had managed to get the money for this colossal task. "What do you mean?" the Russian answered. "How did you get all that money?" persisted his questioner. "I don't understand" said the man from Moscow. "We decided this was the machine we needed and so we built it." (This story comes from Prof. John Turkovich of Princeton University, who is an authority on science in the Soviet Union and is quoted from an article on page 60 of the Saturday Review of March 24, 1956.) This points out that in Russia there is taking place the most extensive program in the world in the interest of basic and fundamental science, and there is no limit to the funds being expended for basic research.

The Congress, to advance fundamental research, must help provide the funds to build the laboratories where these processes may be advanced. In these laboratories dedicated men, working alone or in association with other men likewise dedicated, will make progress through basic fundamental research, to the end that there may be eliminated the diseases which plague our population. This is the purpose of the legislation which you are considering. In these laboratories which you will help build by providing the money, knowledge with the utmost freedom will be applied by competent, outstanding, educated men and women who devote their lives to basic research and thus advance and expand the progress that comes out of the few and totally inadequate existing laboratories. Thus you will assist in solving the health problems of our people.

The foregoing statements are taken in the main from the writings of yesterday and today on this exceedingly important subject. To make progress not only must we find dedicated men, but certainly provide the buildings, laboratories, and

facilities which are desperately needed so that we can, through the advancement of basic and fundamental research, find the road and the goal we are seeking.

The CHAIRMAN. Also a statement from Dr. Alan T. Waterman, director of the National Science Foundation.

(The statement referred to follows:)

STATEMENT BY DR. ALAN T. WATERMAN, DIRECTOR, NATIONAL SCIENCE FOUNDATION

The Foundation believes that the objectives of the proposed bill (S. 849) are extremely worthwhile. There is a continuing need for additional research in the various sciences affecting medical progress which at present suffer from a lack of sufficient appropriate space and equipment to carry on such research to the extent otherwise possible.

The results of research are unpredictable. It is impossible to know for certain from what type of research will come the knowledge needed for understanding the causes and cures of disease. The role of the pancreas in diabetes, which, in turn resulted in the isolation of insulin, our only known agent for the control of this disease, was not discovered by men then seeking knowledge about diabetes. The use of cortisone and other adrenal steroids can be directly traced to an academician's interest in the function of the pituitary gland. The conquering of infectious disease through use of antibiotics was the result of a fortuitous observation made by an alert mind rather than because of an intensive search for antibiotics. Only rarely is an important discovery made through the work of a single individual intent upon finding the cure for a specific disease. Rather, it is the accumulated findings of many scientists often working on apparently unrelated problems, synthesized and distilled by an alert mind, which results in the understanding necessary for the prevention or treatment of a specific disease or pathological entity.

Section 702 of S. 849 limits the aid to be granted to the cost of construction of facilities needed "* * * for the conduct of research into the causes of and possible cures for crippling and killing diseases. * * *" Restricting construction to facilities for the conduct of research on the causes and cures of particular diseases is not scientifically realistic. Just as the medical student must study the basic sciences, so must medical progress depend on a large variety of basic disciplines. If these are not fostered, progress in medical knowledge will be deterred rather than advanced.

In this connection we believe that the provisions in H. R. 9013 and H. R. 9014 which would authorize appropriations to provide grants to assist in the construction of new or improved facilities for medical or dental research or teaching generally come closer to solving this particular problem in a more satisfactory manner than does the language of the bill before you. Assistance to the construction of facilities for such research and teaching would make possible more rapid progress in controlling diseases.

The CHAIRMAN. And also a statement from Christine Stevens, of New York City, in support of the legislation, but making a special plea for proper facilities for animals used in research in our research laboratories.

(The statement referred to follows:)

STATEMENT OF CHRISTINE STEVENS, NEW YORK, N. Y.

The proper housing and care of experimental animals is of great importance in the conduct of first-rate medical research involving such animals. However, the animal quarters of many of the scientific institutions which I have visited do not make adequate provision for the health and well-being of the occupants. In the same city or even in different departments of the same institution, the visitor may find excellently designed and maintained animal quarters on the one hand, and on the other, cramped, dirty, dark, ill-smelling quarters where communicable diseases among the animals frequently interfere with the scientific observations being made.

Close confinement of the larger species of experimental animals such as dogs and monkeys has been the subject of scientific investigation, and the abnormal physiological effects resulting from such confinement recorded (shrinkage of the adrenal cortex in the monkey; metabolic changes in the dog); yet some

laboratories confine these animals to small, metal cages from which they are never even released for exercise.

The very well-designed quarters for dogs, monkeys, and other large animals on long-term studies in the big animal breeding and hospital section of the National Institutes of Health could very well serve as amodel for all institutions receiving Federal grants for building. Exercise runways are attached to all kennels and enclosures for large animals.

There is a widespread belief that whenever adequate funds are available for a research building, it follows almost automatically that the animal quarters will be well designed and comfortable. Unfortunately, experience shows that many millions of dollars have recently been spent for the construction of medical research buildings whose animal quarters are entirely inadequate both from the humane and the scientific viewpoint. It is not uncommon to see very substantial waste of space and construction material immediately adjacent to quarters in which each animal has only enough room to turn around.

Vistors to the type of windowless room where a hundred or more dogs are kept in small cages without exercise facilities and with nothing to rest on but the metal grid floor of the cage are met with an almost deafening noise of barking and shaking of the cages; not only does this constitute bad animal husbandry which cannot fail to have a deleterious effect on the research as such, but it is very wrong to inflict this wholly unnecessary suffering on animals. In many cases the experiment in which the animal is used is painful and distressing. It is inexcusable to add to his sufferings by depriving him of such basic needs as a place to stretch his legs and a comfortable place to sleep; yet thousands of laboratory dogs, cats, and monkeys throughout the Nation are being so deprived. In far too large a number of laboratories, the minimum needs of many different species of animals which they use are not being met.

I respectfully recommend to the Subcommittee on Health and Science of the Committee on Interstate and Foreign Commerce that S. 849 be amended to bring an end to this unnecessary suffering by requiring that the grant of funds for construction of medical research facilities in which animals are used be limited to institutions which already provide or which will provide as part of the new construction, humane and scientific housing and care of all animals used, including runways for all large animals and adequate space, cleanliness, ventilation, light, and comfortable resting places for all animals. I should be glad to provide additional detailed data on laboratory animal housing to members of the subcommittee on request.

The CHAIRMAN. The committee will stand adjourned until 10 o'clock tomorrow morning.

(Whereupon, at 12:05 p. m., the hearing was adjourned, to reconvene at 10 a. m., Thursday, April 12 1956.)

NON-FEDERAL HEALTH RESEARCH FACILITIES

THURSDAY, APRIL 12, 1955

HOUSE OF REPRESENTATIVES,
HEALTH AND SCIENCE SUBCOMMITTEE OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D. C.

The subcommittee met at 10 a. m., pursuant to call, in room 1334, New House Office Building, Hon. J. Percy Priest (chairman) presiding.

The CHAIRMAN. The subcommittee will come to order.

We are meeting again this morning to continue hearings on the bill, S. 849, a bill to provide assistance for construction of non-Federal medical research institutions and facilities.

We are very happy this morning to have as our first witness Dr. Harry M. Weaver, who is research administrator for the American Cancer Society. Dr. Weaver, if you will come forward at this time, the committee will be very happy to hear your testimony.

May I say to you, Dr. Weaver—and this applies to any and all other witnesses—that if you prefer at this time to give your statement orally with the understanding that the full statement will be included in the record, that is entirely all right. You may proceed as you desire, either following your prepared statement or otherwise.

STATEMENT OF DR. HARRY M. WEAVER, ADMINISTRATOR FOR RESEARCH, AMERICAN CANCER SOCIETY, INC., NEW YORK, N. Y.

Dr. WEAVER. I would prefer to follow my prepared statement.

The CHAIRMAN. You may do so.

Dr. WEAVER. Thank you.

I am grateful for this opportunity to join with Mr. F. C. Sowell, of Nashville, Tenn., and Mr. David Crockett, of Boston, Mass., to testify in behalf of S. 849, which provides Federal subsidy for construction of research facilities in the medical schools and other research institutes of this country. I am appearing before your committee as a representative of the American Cancer Society, whose board of directors has unanimously endorsed all provisions of this bill.

During the last 12 years I have visited a majority of the medical research institutions in this country and have intimate knowledge of the research facilities available to hundreds of the Nation's scientists. These visits were made in my previous capacity of director of research of the National Foundation for Infantile Paralysis, and more recently as administrator for research of the American Cancer Society.

During the course of these visits over the past 12 years I have seen a progressive worsening of the physical facilities for conducting scientific research. This worsening of research facilities is particularly apparent in the case of the crippling and killing diseases of concern to this committee.

It was just 10 years ago that we began to mount a truly effective program of research in the medical sciences. This effort to find through research a practical answer to the crippling and killing diseases entails the granting of funds to support the exploitation of promising ideas for research by the thousands of qualified investigators who are employed already by the Nation's research institutions, and it entails also the granting of funds to defray the cost of training hundreds of additional investigators. This gigantic undertaking has only now begun to take shape and, in my opinion, the results being achieved fully justify its cost.

But of concern to this committee is the fact that, since funds for conducting this research have increased at a much faster rate than have funds to provide housing for the research, the resultant overcrowding is pushing the research program to the point of diminishing returns. If this condition is allowed to continue, we will not only obtain a lesser return per dollar invested in research, but, more importantly, we will lose the research momentum that has been generated over the past several years.

Let me illustrate what I mean by describing the condition we will find ourselves in with respect to cancer, which represents only one of the crippling and killing conditions with which we are concerned.

From 1946 through 1955 the funds to support the conduct of cancer research increased by approximately 2,500 percent. Although in this same period of time there was some expansion of the physical facilities for conducting this research, the expansion was nowhere near 2,500 percent. Or, to put it another way, in 1947 the National Cancer Institute and the American Cancer Society conducted a careful survey which disclosed that $25 million of Federal funds was the least amount of money that was required to provide the additional research facilities needed at that time to house the additional research on cancer for which funds were then available.

I repeat, $25 million of Federal funds, to be awarded on a matching basis. This figure was established because it was generally believed that every dollar of Federal money would result in six additional dollars coming into the building program from private and local sources.

In 1950 the Congress appropriated a total of $16,300,000 of the recommended sum of $25 million. Since 1950 there have been no additional appropriations for construction, so that the original program has not been completed, despite an increase of some 2,000 percent in the amount of funds to support the conduct of research.

The American Cancer Society, in its testimony before the Congress in each of the years 1951 through 1954, advocated the completion of the original program, but, as stated above, such appropriations were not approved.

Therefore, I am happy to have this opportunity to present to this committee the urgent need for construction of facilities for medical research in general and cancer research in particular.

The diseases which we are hoping to eradicate through research not only cause widespread suffering and sorrow, but they result also in great economic loss through cutting off the productivity of those persons afflicted. In addition, we should not forget that the cost of providing medical care for these unfortunate persons represents an enormous economic burden.

Some idea of these costs were presented to the Wolverton committee of the House which issued a preliminary report to the 83d Congress in 1954. This committee estimated that new cancer cases developing each year represent a loss to the Nation of some 3 million man-years of work. If we accept the value of the average annual productivity of each member of the labor force as $3,500, the cases of cancer diagnosed in a single year cost society $12 billion in lost goods and services. Moreover, the cost of providing medical care for cancer cases alone runs from $300 million to $400 million annually.

Thus, I believe you will agree that when we are up against a problem of such enormity it behooves us to take courageous, even heroic steps. We believe that one such step now indicated is the enactment of the revisions contained in S. 849, to provide $30 million of Federal money annually for construction of research facilities.

The $16,300,000 appropriated by the Congress in 1950 for construction of research facilities for cancer stimulated a total of almost $100 million of additional funds from private and local sources. Thus, the $16,300,000 appropriated by the Cougress resulted in a building program valued at approximately $120 million. We have every reason to believe that the Federal appropriation we are discussing today will be just as stimulating to local support.

The funds previously awarded to finance construction of increased cancer research facilities were allocated to 55 different construction projects at 48 institutions in 27 States. Often these funds meant the addition of a floor on top of a building, as at Columbia University in New York City. In other cases they enabled increasing the capacity of a building program then underway, as at the University of California in San Francisco; or the provision of part of a research facility of which the remainder was provided from other sources, as at the University of Utah in Salt Lake City.

It was a program of judiciously placed bits of pieces, rather than a giant building project in any single area.

These construction projects have all been completed and are now in active use. But, as indicated by my previous remarks, there are on file with the National Cancer Institute alone applications for construction grants from 82 institutions in 34 States, totaling just under $31 million. These applications are for grants to expand the facilities for research just in the field of cancer alone—and cancer is only one of the diseases with which this committee is concerned.

These requests have been examined by competent persons who are familiar with the institutions in question, and the facilities have been deemed to be essential if we are to provide adequate working space for the vast amount of cancer research the American people are both willing and anxious to support.

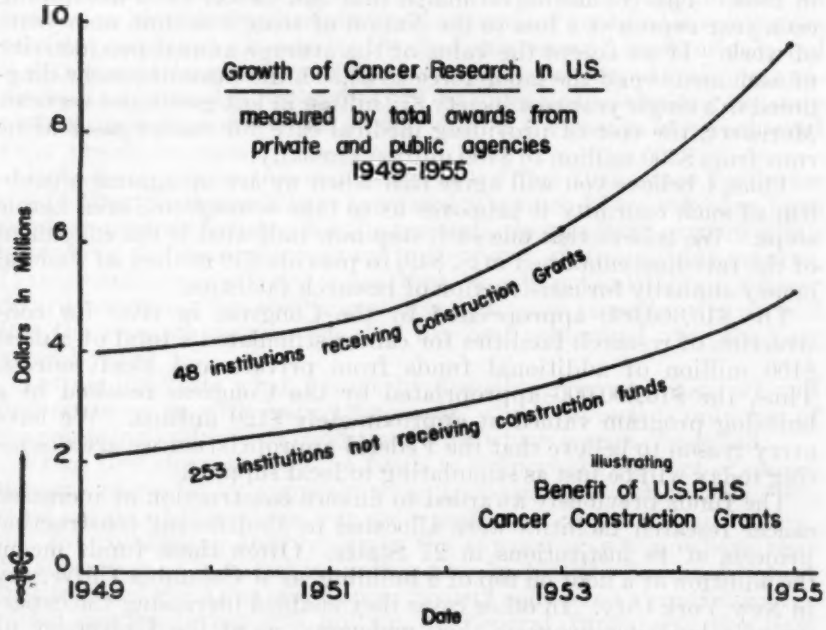
The need for construction funds has resulted not only from the vast increase in funds to support the conduct of research, but also from our training each year of approximately 250 new scientists in the field

76924—56——4

of cancer research alone. We simply must provide adequate research facilities for these newly trained scientists, and for the expanded research programs of the established investigators as well, if we are to reap maximum yields from the funds invested already.

At this time may I place before you a chart showing that it is possible to expand good research on cancer by increasing physical facilities for conducting the research.

(The chart is as follows:)



Dr. WEAVER. The chart illustrates the fact that only about $3 million of additional cancer research funds could be used by the 253 institutions that did not receive construction funds from the appropriation made in 1950 by Congress, whereas $5 million of additional cancer research money was put to effective use by the 48 institutions which did receive construction funds from the Federal Government in 1950.

To put it another way, the 48 recipients of Federal funds for construction of cancer facilities are now conducting about 2½ times as much cancer research as are the 253 institutions which did not receive construction funds. In my opinion this is ample justification, if any further justification is needed, for significantly enlarging at this time the physical facilities for conducting research.

The funds being requested should not be looked upon as annual expenditures but rather as onetime capital investments which augur well to pay off hansomely in the future.

In summary, the American Cancer Society strongly urges favorable consideration of this legislation as a sound and forwardlooking investment in the health and economic well-being of our people. This legis-

lation would provide a powerful mechanism for assuring one of our most precious assets, the health and welfare of our people.

The CHAIRMAN. Dr. Weaver, we appreciate very much your statement. I have only a question or two and there may be other members of the subcommittee who have questions.

I understood from your statement that there are now on file 82 applications with the Cancer Institute for construction grants. I was wondering, in looking at your chart which has information which I think is very helpful to the subcommittee, if you have any estimate of how many of the 253 institutions that did not receive any construction grant would apply for such grants if funds were available federally and if they could carry out their part of the program with matching funds?

Dr. WEAVER. Mr. Chairman, I understand that 2 years ago there was a survey conducted asking all of these institutions—not only the 253 that had received funds—how much money they could use to expand research facilities on a matching basis. That total 2 years ago was $150 million. Those applications are on file at the National Institutes of Health.

The CHAIRMAN. Mr. Dies?

Mr. DIES. Mr. Chairman, I suppose I should address this inquiry to you. Is this bill not supported by all of these medical schools? Are they not pretty unanimous in their support of the bill?

The CHAIRMAN. So far as I know, Mr. Dies, there has been no opposition from medical schools.

Mr. DIES. What about the American Medical Association, did they take a position on this bill?

The CHAIRMAN. The American Medical Association has approved the research construction portion of the bill. It is my understanding that they will submit a letter. We discussed yesterday, as you recall, Mr. Dies, the possibility of expanding this bill or using it as a vehicle for aid to medical colleges. I am certain that their position is wholeheartedly in support of the research facilities part of the bill insofar as this bill itself goes.

Mr. DIES. I was just thinking if we could report out a bill that is pretty generally supported it would make it a good deal easier to get it through the House. If we add a lot to the bill and it provokes a controversy it might not be advisable to do it. I believe we ought to bear that in mind.

The CHAIRMAN. Those questions always have to be borne in mind when we are considering legislation of this character. We do not want to overload any bill to the point that we create sufficient controversy to defeat our purpose. I think the point is well taken, Mr. Dies.

Mr. DIES. It seems to me, Mr. Chairman, that this bill that is being discussed has considerable support. There are some other bills that we have that are not controversial, and if we could select the ones that have no controversy about them, we might achieve our purpose. If we could combine the noncontroversial bills in one bill, we might get the bill passed pretty soon.

The CHAIRMAN. I am hoping we can do that, Mr. Dies. Do you have any questions?

Mr. DIES. Doctor, you feel this measure is vitally important, and we ought to try to get it out and passed as quickly as possible?

Dr. WEAVER. Absolutely.

Mr. DIES. The problem is now acute?

Dr. WEAVER. It is very acute.

Mr. DIES. We need some action here?

Dr. WEAVER. There is no question about that at all.

Mr. DIES. Thank you, sir.

The CHAIRMAN. We have with the subcommittee this morning a member of the full committee who is greatly interested in this subject. He is not a member of the subcommittee, Mr. Dolliver, of Iowa. He is always greatly interested in any legislation affecting the health of the people, and if you desire to ask any questions, Mr. Dolliver, that courtesy will be extended to you by the subcommittee.

Mr. DOLLIVER. Mr. Chairman, I deeply appreciate your courtesy. As you say, I am extremely interested in this subject. I have a personal interest and a general interest that comes from the knowledge of the seriousness of this disease as it affects the health of our people.

One thing I want to bring out and get into the record—and my question is not antagonistic—is that criticism has been directed in some quarters to research and buildings for research on the basis that too much money is authorized, or more money is appropriated than can be wisely expended. I suppose, Doctor, there is a point of diminishing return in this kind of matter. If too many dollars were appropriated, it probably could not be wisely expended because of lack of personnel or inability to find the appropriate places to spend the money.

What is your considered opinion with respect to that in connection with the authorization in this measure?

Dr. WEAVER. I think, Mr. Congressman, we do face a bottleneck in how effectively we can continue to expend money. I think the bottleneck is the limited research facilities that are now available. We have literally stacked one investigator on top of another to the point where they just can't move around. I think it is not a question of personnel at this moment as much as it is a question of adequate research facilities to use what we now have.

Mr. DOLLIVER. Thank you, Mr. Chairman. That is all.

The CHAIRMAN. Mr. Hayworth.

Mr. HAYWORTH. What is the relation between the functions of the National Cancer Institute and the American Cancer Society?

Dr. WEAVER. The National Cancer Institute is an arm of the Public Health Service and is supported under funds from the Federal Government. It has both its intramural research program at Bethesda, and it also makes grants to investigators who are permanent employees of the Nation's institutions for research and medical education, and so on.

The American Cancer Society is an entirely voluntary organization, which functions somewhat similarly to the National Cancer Institute in that it also makes grants to investigators in various parts of the country. We have an extremely close liaison between the National Cancer Intitute and the American Cancer Society so that we are constantly fully aware of what each branch is doing so that there is no unnecessary duplication of effort. We are constantly trying to be certain, because we have what is more or less private funds as compared to the Federal Government, spending them in a way to fully supplement the Federal money that has been made available.

Mr. HAYWORTH. Do you conduct any research work yourself?

Dr. WEAVER. No; we do not have an intramural research program.

Mr. HAYWORTH. Where do you give these grants? Do you give them to colleges?

Dr. WEAVER. That is right. We now have in effect 500 different grants in various medical schools, hospitals, research institutions, colleges, and so on, in this country.

Mr. HAYWORTH. That would be a good many times the number of medical schools.

Dr. WEAVER. Yes.

Mr. HAYWORTH. If these funds were made available through this bill, your feeling is that they would be allocated in part to schools other than medical schools?

Dr. WEAVER. I would think so.

Mr. HAYWORTH. Perhaps even to small colleges?

Dr. WEAVER. The bill calls for that.

Mr. HAYWORTH. Is any other organization, besides those two you have mentioned, engaged in widespread cancer research activities?

Dr. WEAVER. These are the two largest organizations. There are others. The Damon Runyon Memorial Fund appropriates approximately $1 million a year, and then there are a number of smaller foundations that appropriate $100,000, $200,000, $300,000 and those amounts.

Mr. HAYWORTH. Thank you, Mr. Chairman.

Mr. DIES. One great concern that I have about all this program of grant aid, and that is that we must be very careful not to discourage individual donations and the generosity of the people. If we ever get this thing down to the point where the people will say that it is for the Federal Government to take care of, we would do a very great harm.

Dr. WEAVER. Mr. Dies, I am glad you asked that question, because this question has come up repeatedly where we have testified before the Congress. I don't happen to have the chart before me at the moment, but we do have a chart indicating that every year that the Federal Government increases its appropriations for cancer research, the American Cancer Society raises more money the following year than it did before. I think this is ample evidence of the fact that the American public wants to do everything that is humanly possible to do in cancer research. So this is not becoming a totally Federal program by any means.

Mr. DIES. You think perhaps that encourages individuals and group effort to meet the problem?

Dr. WEAVER. It very distinctly does that. As I pointed out in my testimony a few moments ago, when the Congress in 1950 appropriated $16,300,000 to support the construction of increased research facilities in cancer, that resulted in the stimulation of $100 million of private and local funds.

Mr. DIES. Donations to your organization, for instance, are tax exempt to a point, are they not?

Dr. WEAVER. That is right.

Mr. DIES. Your organization is recognized as one of those organizations to which you can donate.

Mr. WEAVER. That is right.

Mr. DIES. Thank you, sir.

The CHAIRMAN. Dr. Weaver, I appreciate very much the question Mr. Dies asked, and your opinion on it. I had in mind pointing out again for the record what you had previously emphasized at one point in your statement, and that was the effect of stimulation of donations from private sources.

Dr. WEAVER. That is right.

The CHAIRMAN. Quite obviously that would be very necessary if this bill should be passed. You gave me an estimate, I believe, a moment ago of $250 million.

Dr. WEAVER. $150 million. That was 2 years ago.

The CHAIRMAN. Of course, over a 3-year period, the authorization in this bill is only for $90 million. It is $30 million a year of Federal money. So it would be quite obvious that it would be necessary to depend to a great extent on private donations.

Dr. WEAVER. Not only would the total amount of appropriations be less than what was needed, but 3 years from now it would mean that was 5 years beyond the time that the $150 million was needed. This is a growing situation and not a decreasing one.

The CHAIRMAN. Mr. Roberts, do you have any questions?

Mr. ROBERTS. I have no questions, Mr. Chairman.

The CHAIRMAN. Dr. Weaver, we appreciate very much your testimony. This committee is quite familiar with the work that has been done, and is being done, and no doubt will continue to be done by the American Cancer Society.

In the discussion of the legislation yesterday it was suggested at 1 or 2 points that maybe in the bill itself we should not spell out categories of diseases. That we should leave more latitude in the bill. That we should not include by name the diseases for which research funds would be granted, or rather construction funds for research facilities. But that by including we exclude perhaps others and make it a too rigid program. As has frequently been brought to the attention of this committee, particularly in the field of basic research, any scientist or group of scientists engaged in basic research many times may come across something that is entirely unrelated to the particular question that they are studying and yet is a very great discovery in itself.

I wonder if you have given any thought or if you have an opinion on whether we should include by name the killing and crippling diseases for which research facilities would be provided by these grants-in-aid, or if we should use more general language. I just ask your opinion if you thought of that phase of it.

Dr. WEAVER. Yes, I have thought of it. My feeling is that the language of the bill as now written, and the amount of money that the bill recommends appropriating, justify each other. If you are going to use more general terms and broaden the research that this would cover, then I think you have to increase the funds.

The CHAIRMAN. I think you are quite right in that respect.

Mr. DIES. I would rather increase the funds and not limit this thing. I think the one point of this bill that I do not like is the specification of the diseases. We have a great many other diseases that are very, very serious. If necessary, I would rather add to the appropriation and simply use the blanket term "killing and crippling diseases," so that this would be a broad, unrestricted research, rather

than to try to pin it down. I know the minute you specify the diseases you carry with it the implication that here is the program. That is just my individual opinion. I would rather appropriate $40 million and have general language, than $30 million limited to these diseases here.

Dr. WEAVER. Mr. Dies, I don't believe that the average scientist would see in this wording, if he reads it carefully, too much restriction. It is the type of research that goes on around medical and dental type institutions. You say, "the crippling and killing diseases such as"—you don't mean only those diseases, but it is of that general character.

Mr. DIES. You say, "including."

Dr. WEAVER. That is right.

Mr. DIES. But that usually carries with it an implication that you are emphasizing those diseases, and that they are the important subjects you want investigated.

Dr. WEAVER. I can tell you that research on that group of diseases covers a vast spectrum of medical research. It is not a limited bill. If you want to include the pursuit of knowledge for its own sake—true basic research—then it is going to take a vast increase in funds to do that.

The CHAIRMAN. Will the gentleman yield?

Mr. DIES. Yes.

The CHAIRMAN. On the question of pursuing basic research, is it not true—and I am not trying here in any way to bring about any conflict of interests or jurisdiction between the National Science Foundation and any other group—that the Medical Division of the National Science Foundation primarily is interested in the basic research program in the medical sciences.

Dr. WEAVER. I think in general that is true, Mr. Chairman, although we should not lose sight of the fact that a vast amount of cancer research is also basic research.

The CHAIRMAN. Of course, the research carried on under the sponsorship of the Science Foundation requires laboratory facilities, just the same as any other research program.

Dr. WEAVER. That is true.

The CHAIRMAN. I think the Foundation itself has been handicapped at times just as the NIH and other groups have been handicapped because of a lack of facilities to do the research. As you expressed it, stacking one investigator on top of another.

Dr. WEAVER. That is right.

The CHAIRMAN. Are there any other questions of Dr. Weaver? If not, we appreciate very much your testimony.

Dr. WEAVER. Mr. Chairman, it was nice to be with you.

The CHAIRMAN. Our next witness is Mr. F. C. Sowell, of Nashville, Tenn.

Before Mr. Sowell begins his testimony, may the Chair ask the committee's indulgence for a few seconds to state that in many years I know of no witness that I welcome with more cordiality to this committee room. Mr. Sowell and I have been friends for perhaps longer than either one of us will admit, because in so doing we might date ourselves. We grew up pretty well together in the same small town. We have been extremely closely associated, he as a radioman and I as

a newspaperman. I have known of his great interest in programs of this nature for quite a long period of time. He has been quite active in Tennessee in the cancer society program, as well as many other programs of a similar nature for the welfare of our people.

I simply wanted to make that little personal welcome to him before this committee this morning.

You may proceed as you desire, Mr. Sowell.

STATEMENT OF F. C. SOWELL, VICE PRESIDENT AND GENERAL MANAGER OF RADIO STATION WLAC, INC., NASHVILLE, TENN.

Mr. SOWELL. Thank you, Mr. Chairman. I hope I can get a written copy of your statement.

The CHAIRMAN. I purposely allowed it to go in the record.

Mr. DIES. You have some witnesses here. I do not know how competent they are.

Mr. SOWELL. I was going to start off by saying how impressed I am with the deep interest you gentlemen are showing in the subject at hand, and I also want to add to that I was deeply impressed by what the Chair had to say in his opening remarks. I was awfully glad the question was brought up a while ago about whether or not the American people would be a little slow in making voluntary donations of money for matters such as this when appropriations were made by Congress.

Mr. Chairman, you are probably aware of the fact that during the past 5 years the people of Tennessee have consistently donated more money each year to all charitable causes, which certainly includes the American Cancer Society, polio, and other campaigns of that nature.

I have already been introduced. I will not go into the formality of telling you who I am in connection with my business relations, but I have been associated with the affairs of the Tennessee division of the American Cancer Society since 1948, serving as its campaign director, as a member of its board of directors, and as president of this division. I have been a national director of the American Cancer Society, representing region III, since 1854.

I have firsthand knowledge of the cancer problem in my State and know in a general way of the research work which is being carried on in our three medical schools—the University of Tennessee, Meharry, and Vanderbilt. I have watched the research program of the entire Nation develop over the past 10 years and I am keenly aware of the increasingly crowded conditions which exist within the laboratories in which this work must be carried out in every section of the country.

I am particularly close to the situation in the three medical schools mentioned above, and at my suggestion the deans of these schools were asked to present in some detail the situations in their respective institutions. I would like to pass on to you, with their approval, the information which they have supplied.

From the University of Tennessee:

The University of Tennesee College of Medicine is very much interested in the passage of Senate bill 849, to provide assistance to medical colleges in the construction of additional research facilities.

Our faculty is under continual and increasing pressure to devote more and more energy and interest to research into the causes of disease, with followup

studies of modes of treatment or modes of prevention. While the grants from external agencies commonly provide the equipment and research assistance and supplies for such studies, they do not enlarge the physical plant nor the areas available for housing the staff and the equipment and the activities of the research program.

The University of Tennessee is, of course, eager to assist and forward these research efforts in every way possible. We have enlarged our staff and have selected personnel largely on the basis of their ability to conduct and direct medical research. We have crowded this personnel into every space available so that want of laboratory facilities has now become the limiting factor in the expansion of research. The University of Tennessee could place into use in the immediate future additional facilities which we estimate would cost between $2½ million and $3 million. With such additional facilities we can expand materially our active participation in the medical-research effort of the country.

Very truly yours,

O. W. HYMAN, Ph. D., *Vice President.*

From Vanderbilt University:

I need but remind you of the financial embarrassment in which many medical schools and their hospitals find themselves. The rapid progress in medical science has meant the establishment of laboratory and treatment facilities unanticipated even a few years ago.

Though Vanderbilt University School of Medicine and Hospital are expanding their laboratories and treatment facilities, they continue to be handicapped in these and other activities by a shortage of funds. We need badly to expand our present facilities in the laboratory, both in the diagnostic and research fields. The research laboratories provide the facilities for the expansion of medical knowledge and the understanding and hence the control and treatment of disease.

These are essential to the health of the Nation. We need aid in the renovation and modernization of certain areas in a 30-year-old plant. The use of modern advances in scientific medicine, as for example, the recent installation of a radioactivity isotope laboratory and cobalt teletherapy unit have left us with the costs of readjustment of space in the X-ray division and in other areas as the result of these new additions for the treatment of cancer and allied conditions.

It is my sincere and conservative estimate that a minimum of $2 million would be needed to modernize and renovate the facilities in our medical center as indicated above.

Sincerely,

Acting in absence of R. H. KAMPMEIER, M. D.,
JOHN B. YOUMANS, M. D.,
Dean.

From Meharry Medical College:

I am herewith outlining in a certain amount of detail the college's requirements both for the present and for the immediate future in respect to research construction.

I might begin by pointing out that 10 years ago there was at this institution only one research project supported by an outside grant-in-aid, in the amount of $4,500. Today grants-in-aid for research amount to $154,700 for the current year. There are 6 projects supported by the National Institutes of Health, 3 by the Atomic Energy Commission, 1 by the American Cancer Society, 1 by the National Science Foundation, and 1 by the Josiah Macy, Jr., Foundation. Yet in all this time and throughout this entire development, we have been able to add by way of new construction for research laboratories and office space only two new units—one of which is small and the other of which is a temporary frame building erected with an NIH grant in 1948.

Not only, therefore, are most of our existing research projects seriously in need of additional space, but there is no available space for those basic science and clinical departments which want to initiate new projects and which now have the personnel to do so. In short, we have run out of space long before we have begun to exhaust our research potential.

In respect to new construction, we need, first, and have for many years needed, a building to house stock and infected animals for teaching and research; this building would also contain laboratories and office space. It will cost, with its permanent equipment approximately $184,900.

We also seriously need a metabolic research laboratory for medicine; biochemical research laboratory for surgery; research laboratories forn neuroanatomy, for neurophysiology and for neuropathology; a loboratory for autoradiography; space for a program of clinical research in cancer; a laboratory for immunological studies of cancer; a laboratory for the study of the metabolism of carcinogenic agents and their derivatives.

These requirements could be met by the addition of three stories to a wing of our present plant. Such an addition would give us approximately 2,000 square feet to the floor, or a total of 6,000 square feet. According to present estimates, the cost of this construction and of equipping the laboratories and offices which it would house would be approximately $180,000.

In terms of estimated costs with the usual fixed permanent equipment, then, the present need is for construction in the amount of $364,900.

Sincerely yours,

HAROLD D. WEST, *President.*

The bill before you would authorize, on a matching basis, an appropriation of funds for the erection of these much-needed facilities. Young scientists are now being trained and graduated from each of the three schools in my State, as well as from all of our other medical and scientific institutions, and there is a great deal of cancer research to which they could devote their efforts if the facilities for carrying out this work were made available. At the moment we have more manpower in this field than we have laboratories in which the manpower can work. Funds for the appropriation for these necessary facilities are the bottleneck. This Federal legislation, on a matching basis, in my opinion, is the keystone to correcting the situation.

Time is of the essence because the cancer problem is growing as our population increases in age and the loss of a few months or years now in accelerating our research program may postpone unnecessarily the answer to the cancer problem.

At the present time there are 230,000 deaths a year from cancer. If present trends continue this will increase so there will be over 400,000 by the turn of the century. We must look upon an ever-expanding research program to change this picture. This proposed legislation is of paramount importance to the expansion of that program.

The CHAIRMAN. Thank you very much, Mr. Sowell, for your statement.

I think you have underscored and emphasized, as Dr. Weaver did, the real problem we are facing here. I think it was very well expressed in the letter to you from Dr. Hyman, from the University of Tennessee at the bottom of page one of your statement and that is that the want of laboratory facilities has now become the limiting factor in the expansion of research.

You further amplified that statement, as did Dr. Weaver, and emphasized it. I am inclined to feel that with Mr. Sowell before the committee and having observed his handling of these medical terms that if there are technical medical questions that the committee desires to ask that it might be well we ask them of Mr. Sowell.

Mr. SOWELL. First if it is in order, Mr. Chairman, I would like to hear the Chair repeat that one paragraph. [Laughter.]

The CHAIRMAN. The Chair will assure you, Mr. Sowell, that he will be glad to do so in private and in the presence of witnesses but not at the present time.

Are there other questions of Mr. Sowell?

Mr. DIES. I have no questions.

The CHAIRMAN. Mr. Hayworth?

Mr. HAYWORTH. I have no questions.

The CHAIRMAN. We do appreciate your appearance before the committee. At least I know that what you have said comes from a background of rather long association with this particular problem. I gather that the situation as expressed to you in letters from the deans of our medical colleges at Vanderbilt University and the University of Tennessee, and of Meharry Medical College, are pretty generally true across the country. I think these are representative schools and that the conditions prevailing there would be conditions that may be expected in most of the medical schools and centers of research across the country.

It has been a real pleasure to have you as a witness before the committee.

Mr. DIES. When you go back to Nashville, you convey the message from one whose people originally came from Tennessee—not far from Lebanon there is a Dies Cemetery, where all my people and ancestors lived, and died—that Tennessee ought to be proud of the very fine chairman of this committee. He is an outstanding chairman and we who are on the committee are proud of him. As a matter of fact, I came to Congress in 1931, and I have served under a lot of chairmen and I have been a chairman. I think Percy Priest is one of the finest chairman that I have served under in all the years I have been in Congress. I want you to convey that message to the people of Tennessee from one whose ancestors originated in Tennessee.

Mr. SOWELL. We get that message constantly, but I will certainly take that message back. And, I will give the message to all of your relatives in the cemetery. [Laughter.]

The CHAIRMAN. Thank you, Mr. Sowell.

Mr. SOWELL. Thank you, gentlemen.

The CHAIRMAN. It seems in the midst of this serious consideration this morning we cannot get away from Tennessee. The next witness before the committee who came to my office a few days ago—I had a very pleasant conversation with him—is from Massachusetts, a State represented by our colleague, Mr. Macdonald, but he came in and introduced himself as Mr. David Crockett, and I was very happy to welcome him, and I welcome you, Mr. Crockett, before the committee this morning.

STATEMENT OF DAVID C. CROCKETT, MASSACHUSETTS GENERAL HOSPITAL, BOSTON, MASS.

Mr. CROCKETT. Thank you, sir. I think it was a great surprise to the chairman to find that there was a David Crockett in the State of Massachusetts. I am very proud of that name. I want to say that there is, as much as anybody can determine, some reason for my Tennesseean name. I will not go into the background of the Crockett family at this time.

I am going to read you a proposed statement, Mr. Chairman, and then I will make some comments following that, if that is in order.

The CHAIRMAN. That is quite all right, Mr. Crockett.

Mr. CROCKETT. Mr. Chairman and gentlemen, I am very pleased to have been asked to appear before this distinguished committee to add

what I can from my experience to the expert testimony that this committee has already heard or is about to hear. On behalf of the Massachusetts General Hospital, of which I am assistant director and vice chairman of the research committee, I want you to have some understanding of their enthusiasm for S. 849 in which your chairman has been so interested. Forgive me if I go a bit into recent history at the MGH.

Immediately following World War II, the doctors who were returning to their peacetime routines at the hospital were exceedingly anxious to build new research laboratories so that a more basic approach could be made on the diseases of the aging. They were encouraged to believe that the degenerative diseases which had filled the hospital wards before and after the first war gave research a great impetus. The doctors were further encouraged by the new developments in equipment that were appearing in the laboratories of MIT and the basic science departments of Harvard, such as high voltage X-ray, the electron microscope and other electronic devices which were now available for medical research. But the greatest stimulus came from the new view into the medical sciences as a result of the splitting of the atom. The scientists from MGH and MIT first used radioactive iodine made available from MIT's cyclotron in 1936. This is a significant date in medical history and paved the way for new research approaches.

In 1945 the Massachusetts General Hospital trustees, however—we are a strictly voluntary hospital—had a great many difficulties in making both ends meet and rising deficits in the war years had badly depleted all available free capital. At the same time the administrators of the hospital were concerned with the deterioration of the hospital plant. Alterations and repairs had not been possible during war years and the older buildings in some instances were dilapidated and many were outdated. But despite this, at a meeting held in the hospital on April 18, 1946, just 10 years ago, with representatives of the trustees and the staff present, such a strong case was made for the importance of new research quarters that this construction was put first on the priority list. Forgive me if I go into a bit more history. This year, 1946, marked the centennial of the first public demonstration of ether in surgery which took place at this hospital and was to be celebrated with appropriate ceremonies. So that the trustees agreed that the first announcement of this hospital's plan to build new research quarters was to be made at the centennial exercises that autumn.

But little progress was achieved in collecting funds until the end of 1947 and early 1948. I had the opportunity to be in Washington at that time and talked to Dr. Leonard Scheele who was then Director of the National Cancer Institute. He told me that it was possible that funds for research construction might be made available by the 80th Congress to qualified institutions for construction of cancer research facilities.

The hospital applied and by spring or early summer $700,000 was made available to us. This generous grant immediately stimulated the trustees to conduct a public campaign to raise a total of $2 million for this building. Another grant from construction funds in the USPHS of just under $500,000 from the Heart Institute assured completion of this building fund and in 1951 the new Research Building was opened with six floors containing a total of 53,835 square feet of

new space for research in cancer, heart diseases, arthritis, basic biochemistry, physics and enzymology. The building cost just under $2,500,000 of which half came from USPHS funds. I record this history to point up several dramatic conclusions.

With this new building and new equipment or tools for research the MGH has been able to chalk up some firsts and more are on the way. I have attached to the testimony here a list of some of the first achievements in the hospital since the ether demonstration.

(The information is as follows:)

PIONEERING ACHIEVEMENTS IN MEDICAL SCIENCE AT THE MASSACHUSETTS GENERAL HOSPITAL

1846 First public demonstration of ether as an anesthetic in an operation.
1872 Development of an instrument for crushing stones in the bladder. Studies continuing today to prevent formation of kidney stones.
1873 The third school of nursing founded in America. More trained nurses have graduated from this school than from any other in New England.
1886 First recognition of appendicitis and development of an operating technique for removal of appendix.
1895 Pioneering in the use of X-ray within 30 days after announcement of its discovery in Germany. Use of first X-ray tube imported to this country.
1905 First social-service department inaugurated in a hospital.
1909 Collapse treatment for tuberculosis of the lung developed.
1914 Development of a system of followup for surgical cases to enable the surgeon to appraise the permanent value of the operation.
1925 Official opening of first tumor clinic for the study of certain types of cancer.
1926 First comprehensive description of how lead poisoning develops and how it may be treated.
1929 Pioneer studies on the relation between the parathyroid glands, vitamin D, and kidney stones.
1930 Opening of the Baker Memorial Hospital, the first hospital for people of moderate means.
1931 Development of surgery for the relief of chronic heart condition and high blood pressure.
1932 Development of hip nailing to stabilize the hip after fracture and enable it to heal.
1937 Radioactive iodine for tracer studies first used in cooperation with the Massachusetts Institute of Technology in the thyroid clinic.
1940 to 1945 Simultaneous wartime studies with other institutions under Government contract of burns, soldier's heart, psychiatric tests for aviators antimalarial drugs, fractures, and wound healing, and shock resulting from wounds.
1948 First use of radioactive isotopes to localize brain tumors with deep probe.
1953 Synthesis of cholesterol in a system simpler than the living cell.
1953 Award of Nobel prize in medicine to Dr. Fritz Lipmann for his discovery of a new coenzyme important in building many body compounds.

Mr. CROCKETT. It has been able to expend its research manpower; the funds available yearly for research have grown from a little over $600,000 in 1945 to nearly $2,500,000 in 1956. This is indicative of the growth of research personnel as more than 50 percent of the total is used for salaries of junior research personnel. Salaries of senior research personnel of professorial status or chiefs of departments are not included in these figures. This expansion has meant that the highly qualified young men, either undergraduates at the Harvard Medical School or graduate students from all over this country with various term appointments at the hospital, are exposed to the atmosphere of research which becomes an important part of their education.

After the dedication of the new research building in 1951, there was immediate interest in further review of the research space requirements. By this time available funds and qualified talent pointed up

the need for space for the study of diseases of the central nervous system. Without the aid of the type of funds made available for the earlier building it has been a long uphill struggle. With $ 2 million now in hand, we are in the middle of construction of a building to house pathology, neuropathology, neurology, neurosurgery and psychiatry, and dermatology. The latter because their space was destroyed to make way for this larger building.

$250,000 of Hill-Burton funds were made available for the routine pathology laboratories, but to meet the cost of the rest of the research space the hospital sought funds from individuals and foundations all over the country. This fund-raising effort has not yet provided all that is necessary to complete the equipment of all the research floors. Without any large controlling gifts from either a foundation or the USPHS it has been a difficult task. This building will house all the greatly expanded research units staffed with the faculty of the Harvard Medical School and the hospital. These units will explore the cause and seek a cure for such killers and cripplers as Parkinson's disease, senile dementia, multiple sclerosis, and spastic disorders; research in psychiatry will be concerned with the recognition and understanding of the earliest symptoms of mental disorders, the causes of these disorders, both in the area and the functions of the central nervous system and metabolic processes, and in the area of the early human relations of the growing organisms.

In neurosurgery, as the newer developments in branches of science having a known or potential applicability in the field of medicine appear, the Massachusetts General Hospital is able to benefit from its close geographical, personal, and scientific relationship with MIT. The common interest of the two institutions in supervoltage therapy has already resulted in fruitful collaboration. Initially all radioactive material used at this hospital was obtained from MIT, and, as already mentioned, nearly 20 years ago radioactive iodine, a product of MIT's cyclotron, was being used for the first time experimentally at this hospital to study thyroid physiology. The early arrangement of casual consultation with the department of physics at MIT has grown to one of close collaboration with the staff of one institution often seen in the laboratories of the other.

On the recommendation of the scientific advisory committee of the hospital, of which the late Dr. Karl T. Compton, president of MIT, was an active member at the time, a hospital physicist was recruited from the department of physics at MIT in 1949, and today this man and another from the accoustics laboratory of MIT are both closely connected with the research program of the hospital. These men have already clearly demonstrated the possible advantages to both institutions of such a relationship. Few scientists in medical schools or teaching hospitals in the country have an opportunity for daily collaboration with men trained in the physical sciences. Such collaboration in our case is further shown by the presence today of two men in the research building at the hospital, who bring from the department of biology at MIT newer techniques of electron and ultraviolet microscopy in the pursuit of studies of arthritis and malignant disease. Another man with similar training will bring these techniques to the research program at the pathology department in the new medical science building.

It may well be that the future experimental advances in knowledge of the functioning of the nervous system and the treatment of neurological disease may be largely dependent upon neurosurgical techniques coupled with utilization of basic discoveries in the fields of electronics and nuclear physics. It is obvious, however, that for this collaboration to be efficient and fruitful, adequate research space must also be made available at the Massachusetts General Hospital.

Although this second addition to our research plant is essential, we have, as I have said, had the greatest difficulty in financing it. At this time neither the psychiatry nor the neurosurgery floors will be finished and many laboratories in neuropathology and neurology will not be equipped as they should be.

I have spoken entirely of my experience at the Massachusetts General Hospital. To finish this part of my exposition, I would like to say that there are whole areas of research at this hospital, and its affiliated hospitals, that are in the greatest need of space. For example, in our affiliated institutions, the McLean Hospital for Mental Illness, we have a small and extremely significant research unit built in 1946 which needs just three times as much space today.

In the Massachusetts Eye and Ear Infirmary, a small research addition has been made available, but the financing has been most precarious and funds for further equipment and completing the construction cannot be found. So that the hospital, as I understand it, has had to borrow from its own capital, which could be better used to lower the cost of care to indigent patients. No new research space is available for the Retina Foundation, which is now housed in an old tenement off the hospital grounds, and inadequate space only for the rest of the eye research program of the infirmary. Only a limited research program in deafness can be launched with the space available, although money and manpower could be readily found to expand this program if space were provided.

A sick person should not be the one to pay for research construction, or to pay the cost of research. This should be a community responsibility. This has been recognized as far as cost of research goes, but since 1950 has not so far as research construction goes.

If Harvard and Massachusetts General Hospital, such well-known institutions, have had the greatest difficulty in financing research construction, we may be sure most other places have had a much harder time.

The Massachusetts General Hospital was a pioneer in the use of X-ray both therapeutically and experimentally but today because of inadequate space and tremendous expense of providing such space which should be underground to provide maximum security, the Massachusetts General Hospital is falling badly behind. The need of new equipment for experimental purposes in neurosurgery, and radiology cannot be housed safely unless large underground laboratories are provided. The hospital has on order a cobalt machine to replace its 1 million volt X-ray equipment, but it also has great need for experimental purposes of a betratron and linear accelerator.

So much for the immediate research building requirements. I would like to add parenthetically that at least $5 million is needed to provide all the immediate construction at Massachusetts General Hospital for several purposes, and its affiliated hospitals at 1956 building prices.

Before concluding I would like to make a few more points. In the education of the medical student the teaching hospital plays an increasingly important part. One single point brings out forcibly the importance of the teaching hospital. It is inconceivable that anyone on this committee would leave their medical treatment to a young man who had just graduated from medical school this spring. No one, least of all this student, would consider himself versed in more than simplest medical and surgical techniques. Even so, graduates of grade A medical schools have spent in all likelihood most of their final 3 years in a teaching hospital. Instruction in the "theory and practice of physic" is now largely concerned with patients and the teaching hospital houses the patients. At the same time the importance of research to the teaching curriculum of the student cannot be overemphasized. In fact, research and teaching are almost equal partners in the training of the undergraduate medical student and post graduate medical education which takes place almost exclusively in one of very few teaching hospitals is even more closely concerned with research in that hospital. A doctor today is hardly qualified until he has spent 3 years in a teaching hospital.

Most of the great research opportunities would seem to appear today in close proximity to the patient. This does not mean that basic science is no longer important; it means that basic scientists closely associated with the clinical scientists have the greatest opportunity and the clinical scientists need the bedside, and the teaching hospital houses the bedside. If manpower for research is to be provided and if research is to be pushed vigorously, research in the teaching hospital must be strengthened and encouraged. To provide more manpower for research, more research facilities in the teaching hospital must be provided.

Gentlemen, this bill before you is essential if we are to see progressive research. Funds for projects in research will soon go begging if new research facilities are not provided. You gentlemen have made a survey of the need, but in my opinion $30 million a year for 3 years for this construction must be a minimum figure. But let us not waste time haggling over details. Let us get this bill passed and implemented with funds; a resurvey after 3 years will tell us better where we stand. Forgive me for taking so much of your time. I urge you as strongly as I can to pass this bill immediately so that it can be implemented with the necessary funds.

Before you ask me some questions, Mr. Chairman, if I may, I would just like to show you—I do not think they can be included in the record—some pictures that I think are rather interesting.

A hundred years ago, in 1853, Massachusetts General Hospital looked like that [showing picture]. That was the entire hospital. This building here housed approximately 40 beds and all the other facilities of the hospital.

In 1946 all the medical research of the hospital, plus practically all the medical research—I qualify that a little bit—plus the medical ward beds, were housed in this same building. So you can imagine with the expansion of research that has gone on in that period it is inconceivable to see how it could possibly be housed in that simple structure. By this time the medical school moved away and the hospital expanded enormously, so it was 1,000 beds.

With the aid of Federal research construction funds, which came out of the 80th Congress in the 2 sums I mentioned in my testimony, we were able to build this 6-story building with the fifty-three-thousand-plus square feet of research space.

Incidentally, I might turn to this other picture to say that in the cellar of this building here were the research laboratories of Dr. White for his entire career, and many, many distinguished scientists, including one who won the Nobel prize.

That building was stimulated by the funds we got from Congress. This little miserable thing is what we have been struggling with ever since to build for the diseases of the central nervous system. The building costs have gone up so much. It will cost $2 million, and will not be completely equipped with the funds available. This has taken enormous effort and time to get the funds.

I thought those illustrations are interesting. I don't think you want them for more than just that. I will be glad to leave them, if anyone wants to look at them.

The CHAIRMAN. They are indeed interesting. Your statement has been very informative.

Mr. Macdonald, do you have any questions?

Mr. MACDONALD. I do not have any really serious questions. I want to compliment Mr. Crockett on his wonderful statement and say I certainly subscribe 100 percent to everything he said. For me to say anything about the Massachusetts General Hospital would be gilding the lily, indeed, because its wonderful record certainly speaks for itself.

Secondly, I would like to say that I am very proud this morning to be from Massachusetts.

Mr. CROCKETT. So am I.

Mr. MACDONALD. To have such a fine representative, representing, in my opinion, the greatest hospital in the world. I know Massachusetts is accused of being parochial, but in this instance we are not at all parochial. Speaking as a layman, and as somebody who has been treated at the Massachusetts General Hospital, I can say that it is just the finest in the world. Naturally I am very proud to be here hearing you describe the work that has been done in that wonderful institution.

Mr. CROCKETT. Thank you very much, Mr. Macdonald. That is music to my ears.

The CHAIRMAN. Mr. Hayworth.

Mr. HAYWORTH. I would like to say that if this hospital has been instrumental in preserving the health of our colleague, we on the committee are all very, very grateful. [Laughter.]

Do you assume that this bill, which is now under consideration, or a bill which would grow out of this, would be used for the building of teaching hospitals in connection with medical schools?

Mr. CROCKETT. Not solely, I hope, because there are research facilities in medical schools themselves that are also of great importance. I hope that the teaching hospital, as I am closely associated with it—I may may be a little blind in the eye that looks in any other direction—needs the assistance for research construction. I think it is very, very important.

Mr. HAYWORTH. Mr. Chairman, I think this point is one that we ought to consider before we allow the people who have been testifying to get away from us, because it really is rather vital. There are many, many millions of dollars involved.

In other words, if we are appropriating $250 million, we need to know whether or not we are going to assume that the council dispensing this money and allocating it knows whether or not it is to be used for hospitals.

The CHAIRMAN. I appreciate the question brought up by the gentleman. I had in mind asking Mr. Crockett a question of a somewhat similar character.

We have considered the possibility, and will consider the possibility, of expanding the bill before us into a broader bill to include—and we hope we shall succeed in doing that—some assistance on one point in particular that you emphasize, and that is on the teaching and training phase of the whole program.

However, in the recommendation sent up from the Department on the bill I introduced at the request of the Department, which combines more or less a bill that I introduced last year, and the present bill—that is, it combines aid to medical colleges generally plus the research facilities—there is a provision which begins on line 25 on page 4—and I want to read that to you to get your comment on the very question Mr. Hayworth brought up—which reads:

> No institution shall be eligible for grant under this title to assist in the construction of a hospital or other facility for which Federal grants may be made under title VI, unless the Surgeon General determines that such facilities are specially designed for, and will principally be used for, medical research or teaching, and does not constitute a project with respect to which a Federal grant has been approved under title VI.

Title VI is the Hospital Construction Act, generally known as the Hill-Burton Act.

I wonder if you were familiar with that recommendation in the administration bill.

Mr. CROCKETT. I am not, Mr. Chairman. I think that deserves a little comment. It does seem to me that the advisory council that is set up under Senate 849—and I think all the bills have that same provision in them—should be given a great deal of latitude in determining where research facilities are that are eligible for assistance, rather than trying to button it up too tightly in the legislation for fear that there may be some instances which I do not know about or the committee or our witnesses know about this morning, where an excellent research unit is going on in a hospital not connected with a medical school, where funds could be taken from our present act and used with funds coming under the title VI that you referred to, to provide in an area where local funds are hard to come by an adequate and important research facility. I think we ought to be a little careful that we do not restrict the usefulness of this money.

It seems to me an advisory council of the kind that is proposed would protect the Congress and protect everybody better than any detailed wording in the legislation itself.

I would like to say, however, if money for teaching facilities is going to be rolled up into this bill, and if this bill is going to be extended for a 5-year period, which I gather what the intent is on some people's part——

The CHAIRMAN. At least that is under consideration, that is, a 5-year rather than a 3-year program.

Mr. CROCKETT. If the teaching institutions are going to be helped and the expansion of teaching facilities is to be provided, you certainly will need a great deal more than $30 million a year. It will be a great deal more. It would seem that $100 million a year would probably be a more reasonable figure.

The CHAIRMAN. I quite agree with you that the amount of money would have to be considerably increased on such a program. As to what figure I have not in my own thinking yet reached, a figure that I think might be a final figure. But certainly it would have to be increased rather considerably per year if we did that sort of a job.

Mr. CROCKETT. I agree.

The CHAIRMAN. Mr. Hayworth, did you have other questions?

Mr. HAYWORTH. No.

The CHAIRMAN. If not, we appreciate very much your appearance before the committee and the help you have given us.

Mr. CROCKETT. Thank you, sir.

The CHAIRMAN. Is Dr. Hans Waine, director of the New England division, Arthritis and Rheumatism Foundation, present?

STATEMENT OF DR. HANS WAINE, DIRECTOR, NEW ENGLAND DIVISION, ARTHRITIS AND RHEUMATISM FOUNDATION, NEW YORK, N. Y.

Dr. WAINE. Yes. Mr. Chairman, by way of identification may I say that I am a resident physician from Boston, Mass. My activities in research and teaching have been carried on in affiliation with the University of California Medical School, with Harvard University Medical School, and most recently with Tufts University Medical College.

I also am chairman of the section on arthritis in the Massachusetts Medical Society's Postgraduate Institute. I am a consultant on arthritis for the Massachusetts State Department of Public Health, and medical director of the Arthritis and Rheumatism Foundation, New England division.

In these capacities, Mr. Chairman, I am personally honored and as a professional man eager to endorse the purpose and the specific language of S. 849. The chronic diseases, among which the rheumatic diseases figure prominently, have assumed particular significance in the last decade or so. Perhaps it should be pointed out that this is not just a fortuitous happening, because many of the other diseases which have specific causes, and for which a specific cure has been made available, are now more amenable to control than they used to be, and they are to a lesser degree a menace to our national hygiene.

In contrast, the chronic, crippling and killing diseases have this feature in common, that they frequently do not have one specific cause, and that they are incurable. It is generally appreciated that they are diseases which last over a long period of time. It is not so generally known that in their development, two factors play an important role. The added lifespan, of which our people now are the beneficiaries, offers a greater opportunity for abnormal host factors residing in persons to become operative over the course of years. It

offers a longer opportunity for abnormal influences in the environment to become felt. That, in essence, is perhaps a definition of chronic diseases, which helps us understand the importance of this particular piece of legislation, which is designed to further research in the killing and crippling of chronic ailments.

It should also, perhaps, be said that whereas one has to think in terms of specific diseases in order to arrive at concrete figures for purposes of budgeting, it is nevertheless true that research carried on in any one of these fields has the broadest possible implications. I would just like to remind you of the fact, for instance, that the development of the adrenal hormones, which have played such an important role in the investigation of rheumatic diseases, has had a much more far-reaching impact on basic investigation in almost every other type of ailment. In fact it is no exaggeration to say that on account of the application of this principle—that is, the discovery and clinical use of adrenal cortical hormones, first in the treatment of rheumatic diseases, in a categorical piece of research—has made it necessary to repeat every physiological experiment that was ever done.

Vice versa, one might also say that rheumatic research has materially benefited from the outstanding work that has been done under the heading of cancer investigation on the activities of abnormal cells, tissue growth, and the work that has been done in the field of endocrinology similarly has fertilized the field of chronic disease research across the board. It is for that reason that I mention here the importance of rheumatic diseases as one example, and perhaps one way of illustrating the particular importance that rheumatic diseases have in this respect. Perhaps not a very flattering way is by measuring the medical ignorance if we are confronted with rheumatic diseases.

I have recently surveyed the diagnoses on 1,564 indigent rheumatic patients which were admitted newly in 1955 to 26 arthritis clinics in northern New England.

Mr. Chairman and gentlemen, in 1,295, or 84 percent of these patients, we were dealing with rheumatic diseases of which doctors do not know the cause nor the cure, nor a method of prevention, nor even a method of satisfactory treatment.

Perhaps another way of illustrating the need for research in this field would be to cast one glance at the social and economic importance of this important sector of the chronic disease field. There, quoting the figures published in Public Health Monograph No. 25 in January 1955, we learn that rheumatic diseases are responsible for a total of 195 million disabled person-days annually in this country. This staggering figure, perhaps, should be illustrated by a comparison. What this amounts to, Mr. Chairman and gentlemen of the committee, you perhaps can visualize if you imagine that the total employed population of the combined States of Arkansas, Louisiana, Oklahoma, and Texas were disabled for a period of 1 month out of each year, just due to this one chronic disease.

I am sure that this committee would not only like to be reassured about the need for research in this field, but I presume that they would want to know also the potentialities that are inherent in research. There I would like to point particularly to two circumstances:

One is that already great progress has been made in terms of saving life and disability purely by research. It has been possible, because

of rheumatic disease research within the last 10 years, to materially reduce the mortality rate due to rheumatic fever. If the mortality rate due to chronic rheumatic fever and heart disease had continued as it was in 1947, then this past year 3,200 more lives would have been taken. Because of research which showed the efficacy of antibiotic treatment in the control of infections that precipitated rheumatic fever, this death rate has been lowered.

Going to another type of rheumatic disease which affects primarily men, about 350,000 victims in the United States, gouty arthritis, one of the most painful diseases, it has been again possible through research not of curing gout or preventing it, but a way of controlling the abnormalities of metabolism which cause gouty arthritis by chemical drugs. That again is an enormous accomplishment due to rheumatic disease research.

Why do we need additional facilities for research construction? One of the reasons is, of course, Mr. Chairman, that there are such few institutions in this country that are now able to carry on any well integrated program of rheumatic disease research. A recent conference on education and research in this field demonstrated that there is virtually no one single medical institution which possesses all the facilities that are necessary. Whereas the number of scientists that are interested in rheumatic disease research in the last 10 years has increased from 450 to 1,000, as of today, there are now only 3 geographical centers in this country in which well-integrated research can be successfully produced.

The reason for this deficiency lies in the newer and modern and complex methods which were not even in use, which were not even thought of 10 or 15 years ago.

Mr. Chairman, in pondering the piece of legislation which this committee has under consideration, I cannot help feel that you are here contemplating a very fundamental step—something which in the annals of medical science perhaps as to importance can only be compared to the reorganization of the medical schools that was brought about by the Flexon Report in the early part of the century.

The CHAIRMAN. Dr. Waine, we appreciate very much your statement and your support of the legislation. The points you have presented to the committee are very helpful.

Are there any questions?

Mr. MACDONALD. No questions. I would like to point out that Boston and New England have been very well represented on the other side of the table here this morning.

The CHAIRMAN. I quite agree with the distinguished gentleman from Massachusetts. Do you have any questions, Mr. Hayworth.

Mr. HAYWORTH. No, sir.

The CHAIRMAN. If not, thank you very much.

Dr. WAINE. Thank you, sir.

The CHAIRMAN. The next witness is Dr. Lester Rudy.

Dr. Rudy, and all other witnesses, may I make this statement before you proceed. I have understood that it will not be possible for any of those witnesses whose names I called a moment ago to appear tomorrow. Therefore, the chairman will suggest without any intention or desire to shut anybody off that if you can hold your statement to about 10 minutes or not to exceed 10 minutes, with the assurance that all of your prepared statements will go in the record, it will help

greatly to facilitate the proceedings, and permit each witness to appear during this morning's session.

You may proceed.

STATEMENT OF LESTER H. RUDY, M. D., SUPERINTENDENT, STATE RESEARCH HOSPITAL, GALESBURG, ILL.

Dr. RUDY. In order to save time, I will not read any of the prepared statement. I would like to state that I am representing the American Psychiatric Association, whose nearly 9,000 members consist of virtually all the psychiatrists in the United States and Canada.

The mental health program needs very desperately help in getting the facilities for us to carry out our research. We know that every other hospital bed in the United States is occupied by a mental patient. We also, as hospital administrators, know in 1956 there will be 300,000 patients admitted to our mental hospitals. As a psychiatrist I know that, even given the best of care, that only 50 percent of these patients will be discharged this year. Of those that remain, 4 percent may be discharged next year, and thereafter it is negligible as to how many will leave.

This means that the average patient who is not cured or sent out of the hospital in the first year will spend an average of 26 years in our mental hospitals.

Besides the economic cost, which is estimated to be $1 billion a year, there is no way of estimating the displacement of families and the misery involved in terms of shattered happiness.

Research is a terribly expensive thing. I am fortunate that we have a well-equipped research facility at our institution. The days of a single researcher working in a basement, such as Claude Bernard, and producing discoveries, has long since passed. Research in psychiatry is a multidiscipline approach and takes all of our efforts. It is an exciting period right now. We are practically in the throes of the psychiatric revolution, probably our third one.

The first psychiatric revolution was taking the patients out of jails and putting them in mental hospitals. The second started with Sigmund Freud, who developed the technique of therapy which did not reach our patients. The type of therapy with a couch, and so on, takes a wealthy individual who is neurotic and not too severely disturbed. Now, in the last few years we have capitalized on our medical and neurological heritage, and have gone back to the laboratories where we have research people investigating along the biochemical, pharmacology, neuromedical, and other symptoms.

I am submitting a list of major research and other equipment items needed in modern research. You will notice that some of these major equipment items run as high as $15,000. We feel that by taking advantage of the new discoveries, the new drugs, and finding out the basis of their action, that we will have much to offer in terms of future discoveries.

I might also point out at this time that one of the great problems in mental illness has been that as psychiatrists we have inherited the aged. I think one dramatic incident in my State would be helpful. A few days ago a patient died at the age of 95 years. She had been hospitalized since the first year of life. The cost was staggering to keep her. This can be multiplied many times.

One last point that I would like to bring up is the question that, if we did have these facilities, if we did have this research grant for development of institutions, would we be able to get the personnel? I can say at Galesburg, which is certainly off the beaten path, and probably many of you never heard of it, we have been able to attract a full-time research staff of 43 people, including an internationally famous director of research, Dr. Harold Heimwitz, several M. D.'s, and several Ph. D.'s, including biophysicists, biochemists, and physiologists.

In the last 2 years we had 2 brilliant Italian scientists sent to us under the Fulbright plan. After their term is up and they return to their native country, they are so anxious to come back because of our excellent facilities that they will join us next month.

Research is a stimulating thing. It cannot be carried on only at medical schools. It has built up our hospital. It has attracted a better professional staff, including care of patients, and given us a new hope and new insight into mental illness.

The CHAIRMAN. Thank you very much, Doctor. Your statement will appear in the record at this point.

(The statement is as follows:)

STATEMENT OF LESTER H. RUDY, M. D., SUPERINTENDENT, STATE RESEARCH HOSPITAL, GALESBURG, ILL., REPRESENTING THE AMERICAN PSYCHIATRIC ASSOCIATION

My name is Lester H. Rudy. I am a physician, 38, a graduate of the University of Illinois College of Medicine. I served in the Army Medical Corps from 1942–46 after which I joined the staff of the Veterans' Administration Hospital at Downey, Ill., as a staff psychiatrist, becoming the Chief of the Acute Intensive Treatment Service there in 1952. In 1954 I left the Veterans' Administration Hospital to become superintendent of the newly built State research hospital for the mentally ill at Galesburg, Ill. I have been asked by the American Psychiatric Association, whose members include virtually all the psychiatrists of the United States and Canada, to appear before you today in behalf of S. 849.

I may say it is a novelty and a pleasure for me to appear before legislators with a plea for financial assistance for institutions other than my own. For I am in the very happy circumstance of directing a research facility that is one of the bare handful of well-equipped installations in the United States in this field. I hasten to add that I don't pretend to have all the money we need at Galesburg. Indeed, I am fretting at the moment as to whether I can find money in the coming year to purchase radioactive isotope tracer equipment. Always it seems that investigation of one channel in a research project will lead to others which must be investigated and which require new types of equipment. But I do mean to say that at Galesburg we have a good building, good professional research workers, wonderful morale; and we are producing. I know how much it costs and how fruitful are the results. And above all, I know that there should be dozens of places like Galesburg throughout the country.

Gentlemen, there can be no doubt about the need for passing this bill, S. 849. Here we have a proposal to allocate up to $30 million a year for 3 years in matching Federal funds for research construction in the fields of heart, cancer, mental health, arthritis, neurological disease, and blindness.

I must say in all candor that I wish the bill were exclusively concerned with funds for mental health. We could use it. Psychiatry is relatively new in developing as a medical specialty. We have lagged enormously behind other fields in recruiting personnel, money, public interest and support. Indeed, the lag is the essential reason why the Nation finds itself with an annual taxload of over a billion dollars which it takes to care for the mentally ill at the moment.

But the amount provided by the bill for mental health research will give us a tremendous boost in the right direction. I confidently predict that it would be absorbed almost overnight if it becomes available, for the need is that urgent. Just a few years ago I would not have been quite so sanguine about the readiness of psychiatry to use this money. But now there can be no doubt. We are getting

down to business. We are attracting the qualified personnel to our ranks to do a good research job. Psychiatry is prominent in medical school curricula. There is an awakening across the country that presages an imminent across-the-board attack on mental illness.

Last year, When Dr. J. S. Gottlieb, distinguished director of the Lafayette Clinic in Detroit and chairman of the committee on research of the American Psychiatric Association, testified before the Senate committee on S. 849, he pointed out that the National Institute of Mental Health had not been able to grant a single penny for the construction of research facilities since it had been founded in 1946. He noted further that the institutes had on hand applications for $22 million worth of construction from qualified agencies and hospitals in the Nation. I think this figure is a very conservative estimate of the need today. For one thing the basis research in our field that has been going on over the past 2 years or so has opened a whole complex of new channels that need to be investigated. Moreover, as we all know, construction costs are rising steadily. I can only guess, but I think it a good guess, that if $30 million were made available for research construction in our field today that it would be grabbed up and put to effective use within the next 2 years, or sooner.

Indeed, I can hardly see how there can be controversy about this bill. You all know how great the problem is. A million people are now being treated for mental illness in our mental hospitals yearly. We are told that the population will reach 200 million by 1970. I see no reason to think that the mental hospital load will not increase proportionately, unless there is some interposition of new techniques and practices. I say to you that beyond a shadow of a doubt our best hope for such an interposition lies in research.

If my reading of history is correct, new discoveries most frequently follow when there is an urgent and deeply felt need for them. Some years ago sufficient fathers and mothers created a demand that we find a vaccine to combat the terror of polio and finally Dr. Salk found one. Is there anyone here I wonder who has the slightest doubt but that our scientists will find an effective treatment for cancer? There is no proof of it, and yet we choose to think that it will be so, nay we are determined that it shall be so, and so it will.

Why then should anyone doubt that we can do the same for mental illness? The answer to mental illness awaits only the same kind of will, determination, public interest and support that created the setting for discovering the atom bomb, the jet airplane, the space rocket, and the Salk vaccine.

I wish I could come before you today and say in so many words that we are on the verge of finding out the cause and cure of psychotic illness, for we may very well be. But I cannot say that as a scientist, for I do not know it to be so, and neither does anyone else. But I can tell you that we feel it to be so. That is, we feel immensely heartened about what we are doing. We feel that at long last we at least have the bull by the horns and we are going to hang on for dear life until we finally have the critter under control.

Why do we feel so good? There are many reasons, but I think the simplest way of explaining is that at long last various kinds of scientific specialists are focussing their attention to the problems through what we usually refer to as disciplinary teams.

Normally, when the average person thinks of psychiatry, he thinks of a doctor, a patient, a couch, and a lot of talk. That is, he thinks of what we call psychotherapy. And why should anyone need research facilities to carry on a lot of talk? Psychotherapy, of course, is a major tool of the profession. But in probing the causes of mental illness we have gone far beyond the use of simple psychological techniques.

The best known aspects of recent research in the field have to do with biochemical research. For example, we have discovered that it is possible to induce mental illness artificially in a normal person by administering certain types of chemicals. If this is possible, we hypothesize; it may then be feasible to find an antidote to the drug; and finally, it may be possible to find an antidote to the chemical reactions that are taking place in the metabolism of the psychotic patient.

But the probing of such hypotheses is a very complicated matter, requiring special laboratories, intricate equipment, highly trained scientists from a number of specialties, and technicians of all kinds.

In short, we need centrifuges, X-ray machines, delicate balances, electronic scales, isotope tracer equipment, all manner of laboratory vessels, electron microscopes, electroencephalographs, record-keeping devices, and all of the paraphenalia that we customarily associate with biological and chemical research

laboratories. We must make analyses of blood, urine, enzymes, brain tissue, hormones, brain lipids, endocrine and adrenal substances, and various other metabolic products. We must measure circulation, heart beat, brain waves, oxygen consumption, electrical activity in the nervous system, and the like. This equipment must be used, and these operations must be carried out by psychiatrists, psychologists, neurophysiologists, pharmacists, biochemists, anatomists, heart specialists, and all kind of adjunctive laboratory technicians.

Now it makes no sense to put these people in a barn, in the space next to the boiler room in a basement, or in an overheated attic. Yet if you will travel about the country and visit the research centers you will find that such research as is going on (and there is not much of it) will be housed in just such quarters as these.

I do not mean to say that heroic work is not often done in a barn. After all Henry Ford gave us our first model T in a shed, and I hope psychiatry will produce its own Henry Ford one of these days. But let's face it. The progress of recent years that has made this Nation the world's greatest power has been achieved through the most elaborate research effort of all time, carried out in the great laboratories of Government and private industry. Indeed, it is not too much to say that total research is our chief weapon of defense. Research is sound business and our life depends on it.

In psychiatry, good research must take place in a hospital where there are patients to treat and study. For they are the subjects and the research controls. It should be an unusually good hospital, adequately staffed so that the research workers can function efficiently with plenty of space and equipment. The research program, must be closely integrated with the treatment program for the research hospital like any other must first of all focus on getting its patients well. It must have a somewhat larger staff than the usual hospital because the use of experimental techniques requires more careful checking and supervision than normally with tested methods. Then there must be a complete laboratory set up along the multidisciplinary lines I have suggested above.

This is expensive. My own research laboratory at Galesburg cost approximately three-quarters of a million dollars to construct, and it costs about $300,000 a year to operate at the present time. We have 43 members on the research staff and are carrying out a broad program of basic and clinical research in mental illness and the aging process.

Gentlemen, there is a desperate need for dozens of research hospitals like Galesburg in the United States. It is a fine thing that the Congress is making available more money to the National Institute of Mental Health for research in the coming year. But I would caution that this money will be better spent if you also make available some assistance to the hospitals to construct the facilities where the research contemplated can be carried out effectively. S. 849 will go far to help. It has the special merit of providing for funds not only for public institutions, but also nonprofit agencies adjudged competent to carry on research. This is an excellent feature of the bill, for no institution has any monopoly on potential for bringing new knowledge to our field.

I know I speak for psychiatrists everywhere in urging you to act favorably on this measure.

Galesburg State Research Hospital, Galesburg, Ill.—Research unit

Rehabilitation and Equipment, 1953–56:		
Rehabilitation of research laboratory building	$371,283.83	
Cost of constructing animal house	46,407.49	
Rehabilitation of 2 research wards	92,363.10	
Total construction costs		$510,054.42
Equipment—Laboratory, animal house and 2 research wards	$167,645.43	
Books—Library	8,385.00	
		176,030.43
Total		686,084.85
Major Equipment Items:		
Ultra-centrifuge, Spinco		14,500.00
Do		10,000.00
Recorder, Poly Vise		4,602.90
Electroencephalograph, Gross 8-channel		4,250.00
Do		3,800.00
Barcroft-Warburg apparatus		3,554.00
Oscillograph		2,540.00
Kjeldahl apparatus		2,500.00
Centrifuge		1,463.38
Do		2,123.80
Electromyograph		2,055.00
Electroencephalograph, Gross 4-channel		1,980.00
Fluoroscope		1,627.50
Auto-Technicon		1,580.00
Nitrogen meter		1,475.00
Centrifuge		1,463.38
Kymograph		1,450.25
Barnstead distilling apparatus		1,375.00
Operating table		1,321.00
Spectrophotometer		1,285.00
Microscope binocular		1,274.82
Stereotaxic instrument		1,074.50
Scaling nuclear unit		1,000.00
Warburg apparatus		1,000.00
Oscillograph		956.69
Photometer flame		914.85
Centrifuge		839.00
Microchemical balance		809.13
Spectrophotometer		804.46
Sonic vibrator		800.00
Appropriation for 1955–57, Research Unit Only:		
Personal services		513,467.00
Contractual services		15,000.00
Travel		5,000.00
Commodities		78,000.00
Stationery, printing and office supplies		1,000.00
Equipment		23,600.00
Initial financing of research projects		10,000.00
Total		646,067.00

The CHAIRMAN. While I am greatly interested in all of these subjects, you have discussed one in which I have had a very particular interest for many years, the mental-health problem, which I think is one of our very pressing health problems in the country. I was wondering about just one question for my information. This research hospital of which you are the superintendent at Galesburg, how many patients do you have in that hospital? It is primarily research, but you have patients also?

Dr. RUDY. Yes, sir. We have 1,200 patients. All research must be extended from the laboratory into the clinical areas.

The CHAIRMAN. Are there any further questions?

Mr. HAYWORTH. My understanding is that there is a great deal of difficulty in getting trained personnel. I was rather surprised to have you indicate that was not one of your troubles. Can you explain that?

Dr. RUDY. Because of our unusual facilities and the marvelously equipped laboratory. In my laboratory we have invested approximately three-quarters of a million dollars in building and equipment. We have also in psychiatry today in our own State, and others have developed within the residency program, a stipulation that an individual spend 6 months at a research facility. We hope by that way if we have the proper facilities to encourage our younger doctors to stay with research and go into it.

Mr. HAYWORTH. Thank you, Doctor.

The CHAIRMAN. Doctor, is this research hospital supported entirely from State funds?

Dr. RUDY. Yes, sir.

The CHAIRMAN. We appreciate very much your testimony before the committee. Thank you so much.

Dr. RUDY. Thank you.

The CHAIRMAN. Is Dr. Andrus from Johns Hopkins here?

Dr. ANDRUS. Yes, sir.

The CHAIRMAN. You may proceed.

STATEMENT OF DR. E. COWLES ANDRUS, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

Dr. ANDRUS. Mr. Chairman and members of the committee, I appreciate very much the opportunity to come before you. I have a prepared statement which I will submit.

The CHAIRMAN. It will be included in full in the record, and you may condense as you see fit.

Dr. ANDRUS. Thank you.

The CHAIRMAN. You may proceed.

(The statement is as follows:)

The following is submitted in recommending passage of S. 849. The measure is an effective means of immediately bringing much-needed aid to the Nation's hard-pressed medical research institutions—especially the medical schools upon whom the most severe burdens lie—for the construction of research facilities. Passage of S. 849 will mean substantial increases in the amount and quality of productive medical research and in the skills and numbers of our scientific manpower in the medical and biological sciences.

This belief is based upon a good many years of living with the problems of research and training—as a physician, teacher, researcher, and as a member of both private and voluntary organizations and Federal groups concerned with medical and allied research matters. Having long been engaged in the work of the American Heart Association, and having served last year as its president, I feel that I understand the point of view of this voluntary organization and the cardiological and other fields represented in its structure, toward the needs and support of research.

I have seen through years of service in an advisory capacity, particularly in connection with the Public Health Service's research grants program, that the Federal endeavor in research can be a natural partner with private efforts. In the 1940's during the beginning years of this program and through much of its growth and development, I served as a member and chairman of the cardio-

vascular study section. This is one of the more than 20 groups, composed mostly of non-Federal scientists, who, as specialists in particular fields, review hundreds of applications for research grants projects each year and recommend concerning their merits for public financial support. More recently, I have been serving as a member of the National Advisory Heart Council, which advises the Surgeon General of the Public Health Service concerning its heart program, including the research and other grants.

Thus, in the last decade or so, I have seen the strong and concurrent growth and development of support for medical research work itself. I have seen it, not only from the two standpoints mentioned—of the voluntary and the Government efforts—but also from the standpoint of the practicing physician and teacher and researcher. Incidentally, I should add that I am not implying that all these are separate fields. One lifetime would be too short for any man to gain fruitful experience in them if they were. All of these things are a part of a whole and are intermeshed with each other; when we speak of medical research the term, to us, includes them all.

There are a number of cardinal principles or beliefs which this experience leads me to feel are paramount and which should be stated in connection with endorsement of a bill such as S. 849. I believe that these principles are also upheld generally by those engaged in medical research in the United States.

They are the essentiality of multiple sources of support for medical research; the principle that Federal support should be additive, complementary, supplementary, and as nonrestrictive as possible; and the belief that public funds in support of medical research stimulate and increase private funds.

It is hardly necessary to underline the importance of the first-mentioned principle. We all recognize that it is in fact vital in a democracy and indispensable to a free science. There must be no one controlling source of support, either for research work itself, or for its manpower or its facilities—the space in which to work and the equipment to do it with. S. 849, providing as it does limited funds, not replacing other aid and not furnishing the sole sustenance for research construction, upholds this principle. It should be said, too, that resources other than the Federal funds of S. 849 will have to be brought to bear to implement adequately the research construction presaged in the bill.

In a sense, the second principle mentioned, that Federal aid should be complementary and supplementary, has been covered in the above. But, to state it another way, it means that we feel that the Government's funds should be used to provide something that cannot otherwise be provided. This is surely the case in the need for research construction today. Private funds, from the small contributions of the man in the street to the larger donations of industry or of philanthropists, cannot do the whole job. Thus, additive Federal moneys, complementing and supplementing, but not overruling or dictating or dominating the scene, must be provided. This is both appropriate and feasible—and desired by most of us engaged in the field of medical research.

The third point mentioned is the belief that public funds will encourage private giving. This belief is based also upon experience. In the special area I am most interested in, the cardiovascular, there has been a healthy and concurrent growth of the American Heart Association and of the National Heart Institute, its Federal partner. People are encouraged to join and assist the voluntary effort when they see that their Government, which is, after all, themselves acting through their elected representatives, is recognizing the gravity of the problem of heart disease. They see, too, that the needs are so great, the problem so large, that it takes both private and public dollars to add up to an effective attack. Again, in the case of provision of research construction, the funds provided in S. 849 should materially encourage private funds on local, State, or regional bases. And the Federal funds of S. 849 will reinforce individual contributions, as well as those from medical associations, voluntary health organizations, foundations, and commerce and industry.

Another factor of prime importance ought to be mentioned now. This is the point that the way the Federal funds are provided by S. 849 will mean something urgently needed but often overlooked when dollars are actually dispensed; the need for broadening the base of medical science. That is, this bill will help to build up our store of sorely needed basic research facts; it will mean the building of places in which research work can be done without regard to whether it promises an immediately practical result.

This is not to suggest that any sound research result is impractical; we all know that the greatest practical boons have come from what once seemed useless facts. Just so will there ultimately come from basic research very practical

things; perhaps preventives or effective treatments for the kind of hardening of the arteries that leads to heart attacks, for example. We must not expect all of these sorts of things tomorrow. But we can never expect them unless we build places for men to do fundamental research in—where they can also train the assistants who, increasing their own skills, can augment the storehouse of knowledge themselves in days to come.

This last thought is worth stressing. The building of research facilities will mean an increase in the scientific manpower available to do good research. This is so because the sort of on-the-job training that a willing young assistant gets from working with a capable researcher is a most valuable means of getting the skills and techniques and stimulation that turn a man into a real scientist himself.

Some years ago, just before the Korean war, a limited amount of funds were made available for construction of research facilities to aid the heart and cancer fields. The heart construction grants, I believe, amounted to about $6 million which, on recommendation of the National Advisory Heart Council, were awarded to about a score of institutions throughout the country. In my extensive travels as president of the American Heart Association, I have seen some of the effects of this construction aid. The effects have been wholesome and the funds supplied, which drew forth a surprising amount of local aid in many cases, made possible new space for research that could not and would not have otherwise been provided. But the aid provided was merely a drop in a large bucket, and the fact that no similar funds for research construction have been provided in ensuing years has meant that the seriousness of the need in the matter of research facilities has increased greatly.

The situation in respect to medical research facilities, nationwide, is worsening, for one thing, because of the very fact that research in the medical and biological fields has been stepped up greatly in the past decade by Federal funds to support research studies themselves. The growth of research activities has cramped existing facilities, almost unbearably in many places, until one can scarcely name an institution that does not have halls and corridors and nooks and crannies jammed with scientific equipment and men trying to find elbow-room to work in. When this growth started, the medical schools and research institutions were already inadequately quartered; they are much more so today.

Especially is this true in the private medical schools and institutions. It should be said that they are doing a magnificent job with what they have and that they have exercised great ingenuity in utilizing and adapting every possible square foot of space for research and research training purposes. But they must have immediate aid for more facilities if they are to do the kind of job the Nation expects them to do in research. This is true, of course, of all the schools all over the country. It would be impossible to say that there is a single medical school anywhere that does not sorely need nonrestrictive funds to build facilities for research. If these funds are provided, their value will be reflected not in the buildings themselves, but in an increased flow of basic scientific facts.

As my friend, the late Dr. T. Duckett Jones, a great crusader for research, said when we were testifying before a congressional committee in 1953: "I am quite certain that in the minds of most of us here the question of basic research is ever present and it is the means by which our greatest and most significant advances come."

In that year, 1953, Dr. Jones and others of us attested to the need for research facilities which was, even then, acute. In the passing years, the need has grown graver, and I earnestly urge the passage of S. 849 as a means of alleviating it and putting us more firmly on the road to the kind of progress in medical research that will ultimately mean great victories over heart disease, cancer, and others of the chronic illnesses.

Dr. ANDRUS. Many of the points which I had intended to raise have been very eloquently covered by previous speakers. I could, I think, duplicate the experience of Massachusetts General by the experience at Johns Hopkins, where I happen to be the chairman of the joint committee on cardiovascular research, including the very considerable impetus which was given to our program of cardiovascular research by a construction grant through the United States Public Health Service several years ago.

One other point which I would like to make is this: I cannot entirely agree with previous speakers that personnel is no problem. I think we are reaching the point at which there is competition in access to scientific personnel in various fields, and this is being felt in the field of medical research. In this connection I am sure that the committee has not been uninformed with regard to a study which has been made by the National Science Foundation jointly with the National Academy and the National Research Council, which is available through the Government Printing Office, called The Soviet Professional Manpower.

I do not wish to belabor the contrasting systems, but it raises a challege in all fields, including those in medicine.

As a corollary to that, there is an article in the March 24 issue of the Saturday Review touching upon a similar question. Recently returned scientists from that area will attest to some of the points that were made there.

I wish very briefly and finally to offer commendation to begin with and to express enthusiasm for the wisely broad construction of the intent of this act. It reads, "The construction of facilities for research."

Without belaboring semantics, I suggest that facilities may be interpreted as a favorable climate of opportunity for young scientists. New knowledge comes from ideas. Ideas come from people. The creation of a favorable climate in which people may pursue their ideas is surely one of our greatest needs, and is likely to be one of our most fruitful investments.

Buildings, equipment alone can be sterile and fruitless without the inspiration of teachers, and without the existence of an intellectual climate in which refreshment of ideas and critical expression of studies may be effected.

I would like, in my very brief statement, to include a story which was first told to me by Dr. John Krantz, of the University of Maryland, which in a primitive way is illustrative of the point I am trying to make.

Many years ago in the 18th century, the head of the Royal Institution in London was Sir Humphrey Davies. One day a young boy came to him and applied for a job as an assistant in the laboratory, a young Irish boy. To make a long story short, and to condense it, he observed in that boy unusual talent. He created opportunities. He assisted in his education. He taught and led him. Among other things which the boy did eventually was this. He was the first to turn a coil of wire in the field of a magnet and to observe that electricity flowed.

At the end of a long and not unproductive career of his own, Sir Humphrey Davies was asked what had been his greatest discovery. He replied, "Michael Faraday."

I suggest that if this act can be interpreted broadly enough to include facilities for research and facilities for what helps research, it will have served a particular purpose. Thank you.

The CHAIRMAN. Thank you very much, I appreciate your emphasis in the last suggestion you made to the committee, because I believe it is important.

I believe since Dr. Andrus is considered a heart specialist that at this point in the record, and following his statement there will be included,

without objection, a letter from Dr. Charles Marple, medical director of the American Heart Association.

Dr. ANDRUS. I am familiar with that letter.

(The letter is as follows:)

AMERICAN HEART ASSOCIATION, INC.,
New York, April 11, 1956.

HON. J. PERCY PRIEST,
Chairman, Subcommittee on Health and Science of the Committee on Interstate and Foreign Commerce,
Washington, D. C.

DEAR SIR: The "notice of hearings" sent to Mr. Rome A. Betts, executive director of the American Heart Association, on April 3, has been referred to me for answer. The notice concerned a public hearing on S. 849 before the Subcommittee on Health and Science of the Committee on Interstate and Foreign Commerce.

I must advise you that the policy of the American Heart Association does not permit official representation to this hearing. This does not prohibit any member of the American Heart Association from appearing and expressing his personal views on the matter under discussion.

Our inability to participate is not to be construed as objection or opposition to Federal efforts to augment the total national research effort. Inasmuch as the keystone of our program is the support and development of research in cardiovascular disease, we are naturally sympathetic to any developments which will improve and increase the research potential of the Nation.

While the association as a body stands united on matters of such wide public interest, it is also true that among our numbers there are materially different viewpoints on the details of legislation of so great an import. Official representation and participation by the association would, therefore, depend upon knowledge of such public hearings sufficiently in advance so that the matter might be brought to the attention of the appropriate policymaking committee within the association.

Sincerely yours,

CHARLES D. MARPLE, M. D.,
Medical Director.

The CHAIRMAN. Are there any questions?

Mr. HAYWORTH. Dr. Andrus, I assume you realize from this bill that it can be used to increase the number of people who are scientifically trained. In other words, we can stimulate the building of new medical schools. Would you consider that would be a desirable feature to include in the bill?

Dr. ANDRUS. I think it would depend upon the dimensions of the resources, sir. There are urgent needs in existing situations. There may very well be in the discretion of the council which this bill creates opportunities for the fruitful investment of funds in such instances as you suggest, also.

Mr. HAYWORTH. That is all.

The CHAIRMAN. Thank you very much, Doctor. We appreciate your appearance before this committee.

Dr. ANDRUS. Thank you, sir.

The CHAIRMAN. The committee will be very happy to hear at this time from Dr. Isador Ravdin, from the University of Pennsylvania Medical School.

STATEMENT OF DR. ISADOR RAVDIN, UNIVERSITY OF PENNSYLVANIA MEDICAL SCHOOL, PHILADELPHIA, PA.

Dr. RAVDIN. Thank you, sir. Mr. Priest, thank you very much for giving me the opportunity to appear before this committee. I am the John Rhea Barton professor of surgery at the University of Penn-

sylvania, and director of the Harrison Department of Surgical Research.

This bill, S. 849, is in my opinion a very important bill, and deserves the strongest commendation. Dr. Andrus testifying mentioned Sir Humphrey Davies. Sir Humphrey Davies in 1790 was working in Dr. Badeaux's Pneumatic Institute in England when gases were being treated for a variety of reasons. He wrote a small monograph in which he stated—

> Since nitrous oxide is capable of nulling pain, it may be used in surgical operations in which there is no great influx of blood.

That was the result of his curiosity which led him to experiment. It was the first basic experiment in anesthesia that was ever done.

I should also like to put in the record since the statement was made regarding the Massachusetts General Hospital, that the first anesthetic given, which demonstrated the effect of ether in man, was given by Crawford Long in Athens, Jackson County, Ga., in 1842, when as the result of witnessing ether parties in which individuals had ether on the handkerchiefs, he noticed that individuals sustained injury and did not complain of pain. He considered the use of ether as an anesthetic agent and gave it purposely to John Venable in order to perform a surgical operation, the first surgical operation performed purposely with ether anesthesia, and demonstrated to be without pain.

There again was an opportunity of an individual with curiosity to carry out an experiment to fruition. I can speak as a member of the research staff of the University of Pennsylvania Medical School. I can speak chiefly for the needs of that institution. What I say has more general application. I have found that the problem of research facilities is a common topic of conversation among scientists wherever I go.

I feel, therefore, that in no sense can I speak for a single institution, but I speak for all medical institutions, even though my own institution is the oldest medical school in the United States, and its hospital is the oldest hopsital owned by a medical school in the United States.

We have many distinguished scientists working in that institution. Dr. Louis Flexner, whose uncle was mentioned a few moments ago, and his contributions need no elaboration.

Drabkin's name in regard to hemoglobin, Comore with pulmonary respiration, Pendergrass' work in X-ray, and Conan's work in regard to cancer. Those are outstanding pieces of research. They all worked with the most limited facilities. Dr. Staddis' entire laboratory in which he did work which brought him international renown consists of two small rooms. This is not true alone for the University of Pennsylvania. It is true of all the great medical schools and great teaching hospitals of this country.

Today in our own institution and many other institutions a number of independent research workers are working in the same room, a condition not conducive to the finest type of research. This bill, if passed, will not only provide research facilities, but it will provide the opportunity for any number of young men to obtain training in basic research, and that is so fundamental to the individual whether he stays in basic research or goes into applied research.

There are hundreds of applicants each year, and men who have received training who are driven out of our medical schools where

the finest type of research should be done in the industry because they do not have the facilities to work with.

With research construction such as this bill envisages, the potential for broadening the base of research training will, I am sure, have been achieved. I hope as the bill expands it will provide additional funds for this great opportunity.

In our own institution we are receiving in grants alone from the Public Health Service $1,780,000 a year. This is a tremendous increase in the amount of work we are doing, especially relating to cancer and heart disease which could go on if we had the facilities to do it. I am sure that this concept is well founded.

I am sure, therefore, that bill S. 849 will give further impetus to the effort of basic and applied research as well as the training of individuals, and I would urge the greatest possible support to this bill, not only as written, but I hope that even in a more extended form, Mr. Chairman, in the provision for funds with a broader interpretation of how these funds will be used. We need funds to provide the opportunity where people may work. We need funds to train people to do the work. We need a great increase in the individuals who will do this work and the conditions under which they will work, which should be conducive to the best type of investigative effort.

Thank you very much.

The CHAIRMAN. Thank you very much for your statement. Your full statement will be inserted in the record at this point.

(The statement is as follows:)

I. S. RAVDIN, M. D., JOHN RHEA BARTON PROFESSOR OF SURGERY, AND DIRECTOR, HARRISON DEPARTMENT OF RESEARCH, UNIVERSITY OF PENNSYLVANIA

I would like to thank the committee for giving me this opportunity to testify on behalf of S. 849. This is an important bill; it deserves strong endorsement; if passed, it will become a vital part of the support for American medical science, to which Congress in recent years has devoted such thoughtful attention leading to farsighted action.

You have, I understand, already heard considerable testimony expressing the need for broad expansion of the Nation's research facilities. This theme may well be underscored time after time. While the past decade has seen a large increase in funds for research and research training, commensurate support of the facilities in which the research endeavor and training is maintained has not been available. The net effect has been to create an imbalance which is now becoming acute, an imbalance which may well cause the postponement of work which should be undertaken now. Equally serious is the fact that in certain instances research may be undertaken under such primitive conditions as to appreciably delay and sometimes distort the research process.

As a member of the research staff of the University of Pennsylvania Medical School, I can speak best, naturally, of the needs of that institution. I am 61 years old, and the better part of my life has been spent in research and medicine. It follows that I have a broad acquaintanceship with a large number of scientists throughout the country. I have found the problem of research facilities a common topic of conversation among scientists, for inadequate facilities have become a source of great annoyance, and occasionally of despair. I feel, therefore, that in a sense I speak for the scientific community as a whole when I speak for the University of Pennsylvania, the oldest medical school in the United States, and for its hospital, which is the oldest teaching hospital owned by a medical school.

I should tell you first that the medical and related needs of the university are not too different from those of other leading institutions. Pennsylvania has had a long research tradition; the university is proud of that tradition and has made available to its scientists all the support within its power for the extension of research and enriching of the research environment.

Many distinguished scientists are working at the University of Pennsylvania for that reason—those who have already contributed greatly to research and medicine and those who surely will. Dr. Louis Flexner's contributions to the neurological sciences need no elaboration. The names of Lukens and Stadie are known everywhere for diabetes research. Drabkin's name is automatically associated with hemoglobin research, Comore's with pulmonary respiration, Schmidt's with cerebral blood flow, Pendergrass with X-ray, and Conon with cancer. These and many others are at Pennsylvania because it is a place which encourages research and teaching and training. We want to keep it that way.

One problem that faces us is the progressive inadequacy of our physical plant.

Today at the University of Pennsylvania it is not uncommon to find several investigators at work in a single small laboratory, but on separate projects. Under such circumstances the investigator is necessarily limited in the volume of work he may undertake, and such work as he does initiate is hampered by the stress of competing for space. Moreover, our research facilities are widely dispersed, so that productivity is hampered by the relative inaccessibility of one scientist to another and by the inaccessibility of specialized equipment and experimental animals. Least important but nevertheless of great importance to the devoted investigator, is the nature of his laboratory space. The committee should know that much medical research is now being conducted in our own institution and in many others in basement rooms ill adapted to house fine equipment and, if I may say so, equally ill adapted to encourage the scientist to produce his best work.

You may perhaps wonder if medical science has suffered from inadequate facilities more than other fields. I am sure all departments of a university suffer from lack of space in these troubled times. It is well to remember, however, that the great expansion of medical scientific effort began only after the last World War and that science frequently had to find its small place among older established programs. Scientists begged space, persuaded space, and found it by dispersing to the wings of one building, the basements of another, or by converting areas normally used for storage.

While there has been a sizable amount of new academic construction in the past decade, the burden of a greatly increased student population at universities has required the space to be spread as thinly as possible. It is now grossly inadequate.

Lack of research facilities is damaging. It means that some research is not getting done and that other research is not getting done as rapidly as it should. Too much research cannot be begun.

I have spoken only of conditions as they exist for those presently undertaking research, but each year hundreds of applicants wishing to study or work at Pennsylvania must be turned away for lack of laboratory space. They will be turned away at other major research and training centers as well, I know, and our opportunities for expanding the Nations' research potential are thereby diminished.

The shortage of research facilities has direct bearing on our country's health and welfare. This is most evident when promising work in progress is delayed—not because of the inherent complexity of the problem itself, but because we have no place to really put people. In research surgery at the University of Pennsylvania, for example, we are developing a very promising artificial heart-lung. If this machine is developed, we should then have at our disposal a method for the continuous circulation of blood during surgery, decreasing the dangers now attendant on certain procedures and making feasible other procedures which we now hesitate to undertake. Expansion of this project, however, can only be envisaged with additional laboratory space.

Similarly, studies on the effects of anesthesia on the circulatory system, studies on the neurological mechanisms regulating dietary intake, studies on pain mechanisms, studies on the factors governing the rate of respiration, studies on the factors regulating blood flow through the lungs, studies on the preservation of the life of blood for transfusion—all these studies relating to a variety of diseases and conditions which should be broadly expanded and only await suitable research space for us to do so.

With research construction, the potential for broadening the base of research training would also be achieved. This is not of secondary importance. Indeed, a lack of research manpower may represent the major crisis in American science within the near future. There are, of course, several factors which relate to the shortage of scientists in all disciplines, but not the least of these is the shortage in research facilities. This is especially true in the medical sciences. With increased facilities we can increase our permanent teaching staff as our operating

funds permit us to do; with increased facilities, we will be capable of accepting those qualified students whom, as I have already mentioned, we are now forced to turn away.

At the present time, the University of Pennsylvania has applications for research construction before the Public Health Service in the total amount of $1,780,000. These funds are requested both for research construction in specific diseases and for general research of a basic nature. The legislation, S. 849, which is under consideration, would, I understand, make it possible for the Public Health Service to meet these requests. The committee should know, however, that these requests by no means meet our total needs and that the University believes it can raise matching funds, but funds beyond that as well.

This is a belief that is well founded, I think. It has been one of the curious phenomena of the past decade that the vast increase of Government-support of medical research has stimulated support from private sources. Support from private sources alone, however, cannot be adequate in the immediate future to meet our needs. The Government must share in making available the funds necessary to create a national research effort commensurate with the problems of unsolved disease. S. 849 will give further impetus to that effort, and I strongly urge the greatest support possible for its adoption, not only as written but in an even more extended form not only in the provision for funds but in a broader interpretation of how it will be used.

The CHAIRMAN. If there are no questions, we appreciate the time you have taken to come to testify in support of the legislation.

Dr. RAVDAN. Thank you.

The CHAIRMAN. Dr. Walsh McDermott of the Cornell University Medical School. We are glad to have you.

STATEMENT OF DR. WALSH McDERMOTT, LIVINGSTON FARRAND PROFESSOR AND CHAIRMAN, DEPARTMENT OF PUBLIC HEALTH AND PREVENTIVE MEDICINE, CORNELL UNIVERSITY MEDICAL COLLEGE

Dr. McDERMOTT. I have a prepared statement which I will submit and then make a few comments.

The CHAIRMAN. It will be inserted in the record in full at this point.

(The statement is as follows:)

STATEMENT OF WALSH McDERMOTT, M. D., LIVINGSTON FARRAND PROFESSOR AND CHAIRMAN, DEPARTMENT OF PUBLIC HEALTH AND PREVENTIVE MEDICINE, CORNELL UNIVERSITY MEDICAL COLLEGE; ATTENDING PHYSICIAN, NEW YORK HOSPITAL, CORNELL MEDICAL CENTER, N. Y.

There used to be a saying in public health circles that you never needed to know the exact address of a county health department if you wanted to pay the local health officer a visit.

When you got off the train, you simply went to the courthouse or city hall and hunted for the basement. Next, you went to the farthest and darkest corner of that basement, and there you would find the health department. The doctors, nurses and laboratory people who were custodians of the community's most precious asset nearly always had to do their work in crowded, damp, badly lighted and poorly equipped quarters.

When I first heard this many years ago I thought then of the similarity to medical research facilities. If you sought out the laboratory research area at a university you generally wound up in either the attic or the basement of the oldest and most decrepit building on the campus. There has been great improvement in recent years, of course; but the general situation is still very bad and promises to get worse again unless something is done about it now.

In the last year wide public concern has arisen over the shortage of scientists. Belatedly, industry and Government are seeking through scholarships and fellowships to encourage talented youngsters to embark on a course which will ultimately add them to the Nation's scientific roster.

At the same time, we need to reexamine our entire fabric of values in an effort to find out why so few youngsters wish to embark on this long and difficult

process. If we dig down deep enough, we might find that public prestige is an important factor. The public is willing enough to pay homage to the discoverer of a spectacular new vaccine or antibiotic or surgical technique. On the other hand, the public knows little and cares less about the hundreds of talented men and women whose fundamental research laid the foundations for the newest improvements in preventing and treating disease. The great majority of such scientists in this country are unrecognized by the public, are underpaid and must work under difficult conditions, with antiquated apparatus and in outmoded buildings.

Is it any wonder that our young people tend to choose careers which will not only bring them more money and security, but will provide pleasant working conditions and greater prestige in the community?

This is a many-facted problem, of course. But any measure which attempts to correct an important segment of that problem is unquestionably worthwhile and deserving of support.

I consider the legislation we are discussing here today in that category. It makes no pretentions of solving the whole problem, but it will take us a long way along the road to achieving a better physical plant for research. In so doing, it will contribute to elevating the stature of a research career in the minds of high school and college students.

This is an important consideration, of course, but in my opinion, it is less important than two other aspects I want to mention briefly.

With the critical national shortage of medical scientists, the opportunities for more money and better working conditions outside the research field become more and more attractive. The laboratories with inadequate facilities and uncomfortable working conditions are increasingly at a competitive disadvantage and tend to lose more and more of the best people to other interests which, while important, do not contribute new medical knowledge.

The other aspect I want to mention is the quality of the work itself. It is simple commonsense that more and better work will be done by people in adequate and well-equipped laboratories.

Now, I would like to speak of some of the added benefits that would result from the increased research facilities made possible under this proposed law. It is generally recognized that some of the best medical practice and the best medical teaching is done in an atmosphere which includes scientific research. Added research facilities would therefore tend to reinfore both the quality and the quantity of medicine in this country. And this brings me to a very important extra benefit. Additional research facilities would not only provide invaluable assistance in training medical students, interns, and residents in our university hospitals but would also help to correct the present critical shortage of medical technicians.

It is difficult for the layman to understand the degree to which modern medical practice and research depends on the skilled laboratory technician who, under professional supervision, carries out extremely delicate and precise procedures. The shortage of these essential people throughout the country is a problem which has not received the public notice it deserves.

As in all other highly specialized skills and professions, the most important training comes after graduation from college or technical school. It is the training received on the job which perfects basic techniques and permits gradual advance to more difficult and complex procedures.

There is a shortage of these technicians in every hospital, clinic, and research laboratory that I know of. One of the reasons for that shortage is unquestionably the lack of adequate facilities which will first attract, then retain, and finally improve the skills of these workers.

I would like also to give my views on the general stimulating effects of Federal assistance such as is proposed under this bill. There may be some people who think that Federal money would tend to discourage private giving. My own feelings on this point, I am glad to say, have been reinforced by information provided me in my present capacity as a member of the National Advisory Health Council.

According to the people at Bethesda, a limited program authorized some years ago by Congress to provide research construction money stimulated five times as much money from other sources, mainly private. It is my understanding that the total of Federal research construction grants made under these previous programs amounted to slightly more than $22 million. To this sum a total of more than $120 million additional was added from local, State, and private giving. The net result was nearly $150 million worth of new and

expanded heart and cancer research facilities in 49 institutions in 27 States and the District of Columbia.

Most of these facilities would have been impossible had not this partnership between Federal and other resources been created by congressional action, since the funds from either partner alone would have been insufficient. It has been my observation that when the United States Government and its advisers think well enough of a local hospital or university to want to invest sizable funds to increase its facilities, local confidence and pride is stimulated so that necessary additional funds are readily found.

It has also been my observation that wherever these new or expanded research facilities have been created, the training programs of institutions concerned and the general tone and qualiyt of medical practice and teaching have been improved. I have also noted that with the improved facilities for research, institutions have been able to attract more students and to employ and retain better qualified personnel for both research and for teaching.

In my opinion, Federal funds that will be provided under this bill are absolutely essential if we expect to gain maximum benefit from the great sums that have already been or are about to be authorized for the research programs themselves.

Dr. McDermott. First, I want to say how grateful I am to have this opportunity to appear before the committee in support of the bill, and in support of the broadening of the bill which you have informed us, Mr. Chairman, is under consideration. I think at the first it might be well to recall for a moment just what is involved in construction of research facilities.

We have talked about small rooms and rooms in basements and the like, and just what has to be done in those rooms and how much does it cost. In actuality, a laboratory, as you will recall from having been in them, is precisely like a kitchen. The nature of the operation is very much like a kitchen. In fact, laboratory construction people borrow ideas from the domestic scientists, and the domestic scientists borrow them back again. There are sinks, drainboards, benches around, storage cabinets with glass compartments, and, like a kitchen, there is an enormous amount of dirty dishes which have to be taken care of. In fact, that is one of the largest facilities which is necessary in the laboratory. Then there are deep freezes, ice boxes, and all the other things which one wishes one could have in a modern kitchen in one's own home. Then over and above all that are the very elaborate and very expensive pieces of equipment which must go in first to do the research and secondly to protect the personnel and indeed protect the public from the effects of whatever the research might be in air pollution and that sort of thing.

We all know that the rule of one cook per kitchen has been pretty well tested in time. One can have several cooks in a kitchen if they are preparing different aspects of the same meal. If one has five cooks in a kitchen each attempting to prepare a different meal, then confusion, chaos, and the caliber of the meals is apt to suffer.

To take a single room or two rooms, well constructed, and to convert them into the type of space which can be used for laboratory facilities may take anywhere from $20,000 to $100,000 simply for that size unit. We are talking in our necessity for increased research space in terms of 20, 40, 80 such units in a given institution indeed. So that the nature of the amount of funds involved in this sort of thing is staggering. It is staggering in terms of an individual investigator trying to do an individual project in 1 of these 2 rooms.

I would like to point out how that gets itself involved in the problem of training. The two really cannot be separated and they cannot be

separated for this reason, it seems to me. If we are to have imaginative science, we have to have the young men who are to become the investigators to be able to think in terms of what these gadgets can do. It is not a question of training the young men to run a gadget. Anybody can be trained to run a piece of complicated machinery. But unless one knows just what a gadget can do, the possibilities of given types of research equipment, one cannot imagine constructively. One can simply imagine in a vacuum, and end up with a Jules Verne type of thing.

If one were training a military student in cavalry tactics he would have a greater period of adjustment, and perhaps unproductive, if he had to adjust to more modern techniques. I think it is terribly important that training of scientists be included in this thing. That brings us to another question.

Because research laboratories by and large must be near places where there are patients, they are apt to be in large cities and in large cities where space is very valuable and precious, indeed. As a consequence, we are reusing our space over and over again in every possible way. One place in which there is a great deal of space is the fact that most of our medical schools are set up with the old-fashioned system, whereby there is one large laboratory per course, and that laboratory is no use the rest of the year. It is just like the Yankee Stadium in December, or something. It stays there occupying valuable space.

Western Reserve has shown how with imaginative construction and the expenditure of funds it is possible to take 1 of these large laboratories—and each school has some 5 or 6—and expand it and make it an all-purpose laboratory for all of the other 5 disciplines. So one thereby gets considerably more space.

I think if this program is broadened, as I sincerely hope it will be, that it will be necessary to have more funds than the $30 million mentioned. I think a more realistic figure would be in the neighborhood of $75 million or perhaps even up as high as $100 million.

Finally, I would like to say that I don't like the geographic features of the bill as they are written. I have served on a number of committees, both governmental and nongovernmental, that have to do with granting funds, and I have never seen one in which the members as a group were not terribly interested in seeing that the schools and the colleges and the research laboratories and hospitals in what might be called the less-urbanized areas of the country did not get support. That is, a man from an outlying area has a better chance, actually, than a man from one of the large eastern-seabord cities. So I believe the way to distribute funds for research is by emigration, so that a young man going out to a place where there has not been much research before knows that there is available to him or to his school funds to construct the necessary facilities.

I thank you.

The CHAIRMAN. We thank you very much, Doctor, for your statement. It has been an interesting and informative statement.

I believe you suggested that in an expanding program over 5 years you made an estimate of $75 million to $100 million?

Dr. MCDERMOTT. That is correct, sir.

The CHAIRMAN. Per year.

Dr. MCDERMOTT. Yes, sir.

The CHAIRMAN. For that period.

Dr. MCDERMOTT. Yes, sir.

The CHAIRMAN. The subcommittee is attempting to arrive at some figure to bring into the bill, assuming that the bill is expanded in accordance with our wishes. We are pleased to get these various estimates from you gentlemen who know first hand some of the pressing problems involved.

Do you have any questions, Mr. Hayworth?

Mr. HAYWORTH. Mr. Chairman, I would like to get this into the record. In visiting a number of medical schools I observed that frequently each dean would point out with pride some great advantage which his particular school had. You have just pointed one out in regard to Western Reserve, which appeals to me as being extremely sensible, because although I did not press the deans too much, I realized that there were many, many hours a week that their laboratories were not being used.

I wonder if you can conceive of any way whereby the Council that might administer this proposed legislation could carry to new institutions and to institutions now built various seeds of wisdom and gems of experience which might be helpful in gaining more efficiencies in these various schools of medicine and these research institutions?

Dr. MCDERMOTT. I think that would happen very definitely just by the creation of the Council and the project-site visits which members of the Council would necessarily have to make. The people in the schools are not obstinate. It is just that it took someone with imagination to create this sort of thing. There is a pooling of information that takes place in these project-site visits. Everybody is looking for new ways of handling the same space in more efficient and productive ways.

I am sure that setting up this Council—a broadened Council, and a project-site visit, which will emerge from that—will get this across to the people who actually have to do the thinking and planning in the quickest possible way.

Mr. HAYWORTH. Thank you very much.

The CHAIRMAN. Thank you very much. We appreciate your testimony.

Dr. MCDERMOTT. Thank you, sir.

The CHAIRMAN. Without objection, at this point in the record there will be inserted a statement from Dr. George S. Stevenson, the national and international consultant of the National Association of Mental Health, and there will be inserted also a statement signed by Dr. George F. Lull, secretary-general manager, American Medical Association.

(The statements are as follows:)

STATEMENT OF DR. GEORGE S. STEVENSON, NATIONAL AND INTERNATIONAL CONSULTANT, NATIONAL ASSOCIATION FOR MENTAL HEALTH

I am Dr. George S. Stevenson, national and international consultant of the National Association for Mental Health, and I am speaking for that association in support of S. 849, designed to provide assistance in the construction of non-Federal and medical-research institutions.

The National Association for Mental Health conducts a coordinated research program under the direction and support of the Supreme Council, 33° Scottish Rite Freemasonry, Northern Masonic Jurisdiction. Involved in this are some 22 research centers, scattered throughout the United States and Canada. A list of these is appended. These researches are quite varied and run the full range from the biochemical through the neurological, endocrine, genetic, and clinical

studies. The investigators who are conducting these researches are brought together periodically to discuss their work and to see where one study has a bearing on another. The personnel and facilities for these studies are sometimes well within the range of psychiatric personnel and psychiatric centers, but others involve scientists and research facilities that are less specific; for example, biochemical.

Today we find again and again good research ideas that go begging because there are not adequate quarters or equipment to carry on. It is true that there is also a shortage of personnel, but this deficiency cannot be entirely separated from the deficiency of facilities, for it is in well-equipped centers that personnel are intrigued with the opportunities in the field and trained for research work. The provision of adequate facilities will undoubtedly result in the production of more personnel. Furthermore, since many of these facilities would be located in connection with medical centers and some of their staff would be teaching medical students, the impast on the medical students would be such as to interest them in full- or part-time research.

The National Association for Mental Health is now about to launch a much-expanded research program involving not only more funds available for allocation, but also a much broader range of problems to be attached. If it is successful in finding personnel and facilities it will very often be at the expense of research programs in other medical fields. If it is unable to find such personnel and facilities, it would hold up progress in dealing with mental disorders. There are today more good research leads than are being pursued. We have, for example, leads bearing on the disturbance in psychological functions that go along with old age which are not being followed. We have leads to a better understanding of certain types of mental deficiency which are presently being ignored.

The National Association for Mental Health has been urging the provision of Federal assistance for research construction for many years and hopes that the present bill will find its way into the law.

RESEARCH PROJECTS DIRECTED BY THE SUPREME COUNCIL, 33D DEGREE, SCOTTISH RITE FREEMASONRY, NORTHERN MASONIC JURISDICTION, THROUGH THE NATIONAL ASSOCIATION FOR MENTAL HEALTH

Dr. Kenneth Appel, Institute of the Pennsylvania Hospital, Philadelphia: Investigation of the effects of carbon dioxide treatment in early schizophrenia.

Dr. Philip Bard, Johns Hopkins University: Experimental study of aggression and anger in animals.

Dr. George H. Bishop, Washington University, St. Louis, Mo.: Study of the nerve cell activity through the use of tiny electrodes to pick up the electrical changes that occur during the activity of a nerve.

Dr. C. H. Hardin Branch, University of Utah: Investigation of compound F in the circulating blood of schizophrenic patients.

Dr. Robert Allen Cleghorn, McGill University, Montreal, Canada: This is a study of certain drugs that when administered produce mental disorder similar to that which is seen in our mental hospitals. Some drugs produce hallucinations. The effects of these drugs are important because of the resemblance of their effects to schizophrenia.

Dr. Daniel H. Funkenstein, Boston Psycl opathic Hospital: Investigation of the physiological patterns found in schizophrenia.

Dr. Hudson Hoagland, Worcester Foundation for Experimental Biology, Shrewsbury, Mass.: Study of the relation of adrenal function to schizophrenia.

Dr. Irving Kaufman, Judge Baker Guidance Center, Boston, Mass.: Study of preschizophrenia children. This involves a careful study of the psychological problems of the child's mother which has a serious impact upon his personality development.

Dr. Franz J. Kallman, New York State Psychiatric Institute: Study of the hereditary influences in dementia praecox through the comparison of coincidence in this disorder in identical and fraternal twins.

Dr. Peter H. Knapp, Boston University School of Medicine: Investigation of the relation of asthma to schizophrenia.

Dr. Zygmunt A. Pietrowski, New Jersey Neuropsychiatric Institute, Princeton, N. J.: Study of projective techniques in early schizophrenia.

Dr. Marian Putnam, James Jackson Putnam Children's Center, Roxbury, Mass.: Investigation of the adverse effects of childhood experience in undermining personality and rendering the individual susceptible to mental illness.

Dr. Ralph D. Rabinovitch, Neuropsychiatric Institute, University of Michigan: Study of childhood schizophrenia.

Dr. Carl Schmidt, School of Medicine, University of Pennsylvania: Study of the utilization of oxygen by brain tissue.

Dr. Heinrich Waelsch, New York State Psychiatric Institute: Study of chemical changes involving nuclear protein in dementia praecox.

Dr. Alfred Washburn, Child Research Council, University of Colorado: Studies of the psychological development of children.

Dr. John C. Whitehorn, Johns Hopkins University, Baltimore: Dr. Whitehorn is making a study of the personal (psychological) characteristics of psychiatrists that render them more or less effective with certain types of patients, especially schizophrenic patients.

Miss Meta A. Neumann, St. Elizabeths Hospital, Washington, D. C.: This is a study of the part played by basal ganglia structures in the development of schizophrenia. The basal ganglia are masses of cells deep in the brain tissue separate from the cortex. They are among other things heavily involved in emotional expression.

Dr. Ian Stevenson, Louisiana State University School of Medicine, New Orleans: Investigating certain psychological and biochemical aspects of schizophrenia and experimental psychoses, using lysurgic acid and other drugs that bring about hallucinations artificially.

Dr. Francis J. Gerty and Dr. Ivan Boszormenyi-Nagy, University of Illinois, Neuropsychiatric Institute: This project consists of a study of the diagnostic aspects of unusual chemical changes going on within the red blood cells of schizophrenia patient.

Prof. Erwin Chargaff, Cell Chemistry Laboratory of Columbia University College of Physicians and Surgeons, New York City: This is a research on the nuclear proteins and nuclear acids of the brain. These are the peculiar chemical components of the nuclei of cells.

Dr. George L. Engle, University of Rochester, Rochester, N. Y.: To provide stipends for students between the third and fourth year of medical school from the University of Rochester to work in the field of research during the summer thereby receiving training in the methods of research.

AMERICAN MEDICAL ASSOCIATION,
Washington, D. C., April 12, 1956.

Hon. J. PERCY PRIEST,
Chairman, Subcommittee on Health and Science,
House Committee on Interstate and Foreign Commerce,
House of Representatives, Washington 25, D. C.

DEAR MR. CHAIRMAN: Permit me to take this opportunity on behalf of the American Medical Association to submit for your consideration our views on S. 849, 84th Congress, and other related measures now pending before your committee.

As we understand the bill, S. 849 would authorize the appropriation of $30 million annually for the next 3 years for grants-in-aid for the construction of non-Federal medical research facilities. Grants would be on a matching basis under the direction of the Surgeon General of the United States Public Health Service and would be available to universities, hospitals, schools of medicine, dentistry, osteopathy, and optometry.

As you know, the American Medical Association supports the principle of one-time Federal matching grants for the construction of medical education and research facilities.

We supported H. R. 4743, 84th Congress, a bill to provide such aid, with two specific changes, when hearings were held by your committee in June 1955. Recommending the same modifications, we previously supported the companion measure, S. 1323 in the Senate.

The association is of the belief that any measure embracing the principles of Federal aid to medical research as in S. 849 should be carefully coordinated with existing grants programs and the proposed medical education grants program. Standing alone, S. 849 would not, in our opinion, effect this coordination, and we recommend that another approach be adopted.

We are impressed favorably with the coordinated approach to the problem exemplified in H. R. 9013, 84th Congress, also pending before your committee. This bill also conforms to our recommendations for changes in H. R. 4743, 84th Congress.

In both S. 849 and H. R. 9013, however, funds are made available for the benefit of osteopathic facilities. Because of our repeatedly expressed opinion regarding the lower standards of osteopathic instruction and the cultist nature of the osteopathic theory, we oppose the inclusion of such facilities in any bill. Further, although S. 849 does not so provide in express language, the Senate report of the measure indicates that funds would also be available for schools of optometry. Because the general scope of optometry includes only refraction to measure and correct by lenses nonpathological deficiencies in visaul acuity, and specifically excludes the diagnosis or treatment of pathological conditions of the eye, we see no value in the construction of research facilities for opteometric institutions and are opposed to their inclusion in the measure.

In summary, the American Medical Association recommends the enactment of a consolidated bill, embodying the provisions of H. R. 9013, but modified to exclude grants to osteopathic and optometric facilities.

Respectfully yours,

GEORGE F. LULL, M. D.,
Secretary-General Manager.

The CHAIRMAN. The committee will stand adjourned until 10 o'clock tomorrow morning.

(Thereupon at 12: 10 p. m., a recess was taken until Friday, April 13, 1956, at 10 a. m.)

NON-FEDERAL HEALTH RESEARCH FACILITIES

FRIDAY, APRIL 13, 1956

HOUSE OF REPRESENTATIVES,
HEALTH AND SCIENCE SUBCOMMITTEE OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D. C.

The subcommittee met at 10 a. m., pursuant to call, in room 1334, New House Office Building, Hon. J. Percy Priest (chairman) presiding.

Mr. HAYWORTH (presiding).

I understand that the first witness is to be Dr. Robert A. Moore.

STATEMENT OF DR. ROBERT A. MOORE, VICE CHANCELLOR, UNIVERSITY OF PITTSBURGH, PITTSBURGH, PA.

Dr. MOORE. Thank you, sir.

Mr. HAYWORTH. I might say, Dr. Moore, that it has been my privilege and my pleasure during the past few months to have visited a number of medical schools, some 15, and there I talked with various individuals about other members of the profession whom I might consult in regard to the provisions of this bill, and your name was mentioned many times as being an outstanding person in the field. We are very glad to have you with us so that you can give us the benefit of your knowledge.

Dr. MOORE. I am delighted to be here, sir.

I am Dr. Robert Moore of Pittsburgh, Pa. I am the vice chancellor for the Schools of Health Professions at the University of Pittsburgh. I am also this year president and chairman of the executive council of the Association of American Medical Colleges, an association consisting of the 81, or soon 83, medical schools in the United States.

I welcome this opportunity, Mr. Chairman, to present some thoughts about bill 849 in relation to the medical schools in both the field of research and of training. It is the belief of the medical schools that this bill is basically a sound bill, and has many desirable features in it. However, I would like to comment on four points.

Mr. HAYWORTH. Dr. Moore, do you have only one copy of your statement?

Dr. MOORE. I have no prepared statement, sir. I would ask your permission to send a statement to you later.

Mr. HAYWORTH. Thank you.

Dr. MOORE. I would like to comment on four aspects of this problem of facilities for research and training of individuals in the broad field of medicine or health, if you expand it to include others, with specific relation to bill 849.

The first point I would consider is the matter of the term of the bill. As I understand it, the present bill is for a 3-year term. I believe that it would be desirable if this term were extended to certainly a minimum of 5 years. My reason for putting forward that idea is that this is a matching bill in which there is a similar amount to come from local and private sources. That will take some time. It will take time to develop plans in relation to many of these. Therefore, I would suggest that it be for a longer term, and until the money is expended.

The second point relates to the amount. The present bill, as I understand it, provides for $30 million a year for 3 years.

The medical schools made a survey of this situation about a year to a year and a half or 2 years ago, and came up with a figure of $250 million needed for the expansion of present facilities. That did not take into consideration the building of any new medical schools. It did not take into consideration the needs of dentistry or public health. So that from the standpoint of the need, I think an absolute minimum would be $250 million, and if you add to that new schools and the other schools that are possibly included in such a bill, it would go considerably above that. I am not in a position myself to estimate how much above $250 million is needed, but certainly that is the need as expressed by the medical schools themselves.

The third point relates to the scope of the bill, the interrelation between research and training of personnel of all types. It is extremely difficult, Mr. Chairman, to separate, as I am sure you have seen as you have visited these schools and got a better insight into the problems, research from training. Given a certain laboratory, it may be used part of the time for undergraduate students, part of the time for graduate students, and part of the time for research purposes. We were just planning yesterday our new building at Pittsburgh, the biochemistry laboratory. In that laboratory we will be doing all of these things at different times. One group of students will use it on certain days. Other graduate students and Ph. D. candidates will use it at other times, and those are the men who will be doing the research.

The fourth point relates to geographic distribution of the funds. As we see it, or as I see it, medical education is a national function in terms that you cannot say that a physician educated in one place will remain there. They go to all parts of the country. In other words, I think we must look upon the medical schools as a national resource, rather than local. It has got to be built up every place.

My suggestion, sir, would be in the light of the actions of the councils of the Public Health Service in the fair distribution of funds for research of the country that this be handled in somewhat the same manner by the establishment of a council—a broad base council consisting of people who are skilled in the field, scientists, physicians, and also lay members representing the general public viewpoint—and that this question of distribution be left to the council to determine as they have so well determined in the distribution of the research funds.

That, Mr. Chairman, I think represents the viewpoint that I would like to present to you in relation to this bill. Of course, I would be pleased to answer any questions that you may have concerning it. Again, I thank you for the opportunity of appearing before you.

Mr. HAYWORTH. We are very grateful to you, Dr. Moore, for having appeared before us.

As you know, other bills before us in this field of legislation provide for 5 years.

Dr. MOORE. Yes, sir.

Mr. HAYWORTH. Some people have wondered whether or not we should consider this first bill as a kind of opening, whereby we could get experience for further legislation at another time. I am sure that even with the expenditure of $250 million, there will be need for much more building in the future. Therefore, some of us have wondered whether or not it would be desirable to have a bill that would cover the first 3 years until we gain experience in this sort of thing, and at that time it might be possible to write a still better bill than we are able to write at the present time. What do you think of that?

Dr. MOORE. I certainly would not say that a better bill after experience could not be written. That is entirely possible. However, I believe that even under those circumstances that a 3-year period is too short to get underway in the light of the need for matching these funds, the need for developing plans. It is true that some schools have already developed their plans, and would be able to come in with a request before the proposed council at an early date. Other schools have not developed those plans, and it might take as much as a year or a year and a half to develop plans so one could get firm estimates of cost, and then to go out and secure the matching money. By that time, almost the 3 years would be up. I don't believe it is adequate.

Mr. HAYWORTH. You made the important point that our medical schools are a national rather than a local problem. What would you say about the effect of restrictions on admissions which several State medical schools have? It would seem that they treat this as a State problem and not as a national program. Do you think a bill should contain a provision to eliminate these restrictions?

Dr. MOORE. No, I do not think it should, sir. I think the evidence of the last 5 or 7 years is indictative of the fact that there is no great need for that. Most of the schools following the war that placed restrictions on admission are gradually relaxing them to the extent that I would leave it to each school. I am sure that every dean wants to get the best men that apply in and leave it to them to determine where their students shall come from.

Mr. HAYWORTH. You think the taxpayers of Wyoming, for example, where they have no medical school, should pay taxes for the support of a school that will not admit a Wyoming student?

Dr. MOORE. I do not know, sir. That is a question a little out of the field of medicine. It gets into the matter of Government policy.

I go back to my general proposition that medical education and the medical schools are a national resource and must be supported without complete—I realize there must be some local considerations. It happens that Wyoming is cooperating, I believe, with the State of Colorado in the regional plan of medical education. So they are making a contribution to the education of Wyoming residents through Colorado.

Mr. HAYWORTH. Thank you, Dr. Moore. Perhaps the chairman of the committee has a question he would like to ask.

The CHAIRMAN. Dr. Moore, I am very sorry that a conference on a rather pressing matter in my office prevented me from hearing your statement. I think on the basis of my past knowledge of your posi-

tion on these matters I know pretty well what you think about the pending legislation.

I was interested in your reply to Mr. Hayworth—I thank you, Mr. Hayworth, for proceeding with the business of the committee—with reference to the time question. I think I am inclined to accept your viewpoint when we consider the implementation of a bill of this nature with appropriations and the planning of a program, a 3-year program cuts it rather short of accomplishment.

Dr. MOORE. I think so.

The CHAIRMAN. That is a personal viewpoint which I believe is the same as you expressed in substance to Mr. Hayworth.

Dr. MOORE. Yes, sir.

The CHAIRMAN. I know in some instances in the past in the case of legislation of this character, where we provided for a 2-to 3-year program, it seems that the underbrush gets hardly cut away before it becomes necessary to extend the legislation. I do not believe we could get in a 3-year period the necessary experience which I agree is important, as Mr. Hayworth expressed. I think it would probably take a longer period.

I have no further questions. We appreciate your appearance before our committee, and you are always welcome here with your suggestions.

Dr. MOORE. Thank you, Mr. Priest.

(The following prepared statement was later submitted by Dr. Moore:)

Mr. Chairman, I am Robert A. Moore, vice chancellor of the University of Pittsburgh, and chairman of the Executive Council of the Association of American Medical Colleges. I am appearing today in support of S. 849, a bill to provide assistance for the construction of facilities for research in crippling and killing diseases.

I should like to say categorically that the bill is basically sound and has many fine features. It is aimed at the solution of an important problem, namely, the provision of better facilities for use in attacking many of the health problems of this country. The Association of American Medical Colleges has been studying various legislative proposals with respect to the construction of medical research and training facilities, and favors action by the Congress to authorize Federal grants on a matching basis to non-Federal institutions.

Specifically, Mr. Chairman, I should like to comment on four features of S. 849 as passed by the Senate.

First, the Association of American Medical Colleges believes that there is such close interrelationship between research and training in the medical field, that it is impossible to separate these two functions. In every medical school in the country the buildings used for teaching purposes are also used for research. In my own school at Pittsburgh we have just built a new biochemisrty laboratory which clearly demonstrates the interrelationship of research and training in the medical sciences. The same space will be used at different times during the week for training of graduate students, medical students, dental students, and nursing students, and for research. It is our firm opinion, Mr. Chairman, that S. 849 should be amended so that its scope will clearly include facilities which can be used for research and for teaching purposes. This need not eliminate the purely research facilities provisions of the bill.

Secondly, in our opinion the period during which grants should be made by the Federal Government to assist in the construction of essential medical research facilities should be extended to a minimum of 5 years. In this connection, and since it is a bill to provide matching funds, it will take considerable time for the institutions themselves to obtain private moneys with which to match Federal grants. Although some of the schools could promptly apply for and match Federal funds, the vast majority could not. It takes time for projects to be developed and for funds to be raised. We therefore favor extending the time limit from 3 to 5 years.

Third, Mr. Chairman, the amount to be authorized in S. 849—$30 million per year for 3 years—in our opinion is thoroughly inadequate. The Association of American Medical Colleges has estimated that $250 million would be needed for construction purposes in medicine alone for the existing schools. This would not provide funds for new schools of medicine nor for schools of dentistry or public health. It is our recommendation that the authorization be for at least $250 million to be spent during a 5-year period.

Fourth, research and training facilities are clearly national resources rather than State or local. For this reason our association recommends that section 705 (c) of the bill be amended to eliminate the reference to geographic distribution of funds. In lieu thereof, the proposed council should be authorized to review the distribution of funds to insure effective nationwide distribution. As the bill now stands the administrator of the program would, in effect, be put in a straitjacket because of the regional distribution provision.

In summary, Mr. Chairman, the Association of American Medical Colleges recommends enactment of S. 849 amended to take into account the 4 points which have been made above. There is great need for positive action soon if the medical research and teaching facilities of the Nation are to be made adequate for the job which confronts them. The association will be happy to cooperate with your committee in working out appropriate amendments to the bill to bring it in line with the suggestions that we have made.

The CHAIRMAN. Our next witness is Mr. Denholm M. Jacobs, associate director of the Massachusetts Eye and Ear Infirmary. We are very happy to have you as a witness before the committee.

STATEMENT OF DENHOLM M. JACOBS, ASSOCIATE DIRECTOR, MASSACHUSETTS EYE AND EAR INFIRMARY, BOSTON, MASS.

Mr. JACOBS. Mr. Chairman and members of the committee, my name is Denholm M. Jacobs. I am the associate director of the Massachusetts Eye and Ear Infirmary, located at 243 Charles Street, Boston. As a layman charged with the responsibility for the development and resources of our hospital, I welcome the opportunity to testify before you and to urge your favorable consideration of S. 849, as passed last year by the Senate. In this I represent not alone my personal views, but equally those of the institution with which I am affiliated.

I feel certain that I need not tell this committee that medical research is coming to be genearlly recognized as the primary means by which doctors improve methods of treatment, and work for the elimination of disease in man. Dr. Alan Gregg, formerly director of medical sciences and now a vice president of the Rockefeller Foundation, says in his book, the Furtherance of Medical Research, that, and I quote:

> Medical research and its inseparable companion, medical education, exist for the purpose of fighting disease and ignorance.

In other passage he states:

> It is only within recent times that universities and scientists have come to recognize that research is as important a part of the university as teaching, that the public does not understand or value medical research as much as it admires and praises it.

Knowledge and more knowledge, which is research, must be acquired by long-term support of broad proposals in a manner which insures freedom of thought, inquiry and experimentation. I would stress at the outset that what is of most vital importance is the support of those universities and institutions whose purpose it is to increase knowledge throughout the whole board spectrum of the medical sciences.

Despite this belief that one should not emphasize the needs of a particular disease at the expense of all others, I must necessarily limit my remarks to the fields of blindness and deafness in which our hospital specializes. I might note parenthetically as one of the teaching hospitals of the Harvard Medical School with which I am most familiar.

There are in this country approximately 1,700,000 visually handicapped people of which 1 million are blind in 1 eye, and 260,000 more who are totally blind. On top of this, the National Society for the Prevention of Blindness estimates that there are 1 million persons who have glaucoma without knowing it and may lose their sight if untreated.

Millions are spent each year to take care of the blind and deaf. However, financial support for research has lagged far behind the barest minimum needs. It is estimated that $150 million alone is spent each year in tax and private funds to take care of those already blind. In addition, Federal tax losses for the 600,000 blind or nearly blind who receive the $600 tax exemption amount to approximately $360 million annually.

The above are but a few of the cold statistics of blindness which illustrate the magnitude of the problem and a few of its economic aspects. In no way, of course, do these figures tell the tragic human side of the story.

However, it seems to me that it is highly significant that only slightly more than $2,100,000 is available each year for the support of eye research while 75 times as many dollars are needed each year to provide the inadequate care and services which are available for those who are already blind. Any diminution of these large sums spent on aid to the blind obviously can only follow the prevention or elimination of the causes of these diseases.

Contrasted with the limited funds available for eye research, or the $2,100,000 of which I just spoke, it is of interest to note that the annual expenditure for sunglasses and goggles is $33,300,000. Another $4,650,000 is spent each year by people of the United States for eyewash.

Now, turning for a moment to another of our dread crippling diseases, there are some 4,500,000 persons in the country with some hearing loss and 760,000 totally deaf, according to estimates of the National Committee for Research in the Neurological Diseases. The need for support of research in the problems of deafness is, if anything, greater than in the case of blindness. Though there are many of the opinion that deafness is more disabling than blindness, and though its incidence is as great as in that other tragic sensory loss, the awareness of the need for research in deafness has developed even less than in the field of blindness. Consequently, there are few available statistics with which to demonstrate the disparity between expenditures for research in deafness on the one hand and those for rehabilitation on the other. Yet it is well known to those who would undertake such research how pitifully few are the sources on which they can call for financial support.

A moment ago, I mentioned that only $2,100,000 is spent annually for research on the problems of blinding eye diseases and that this sum is pitifully low as compared to the need. Included in this figure of course—in fact, more than half of it—is the amount spent by the

National Institute of Neurological Diseases and Blindness both in its extramural grant program ($885,656 for fiscal 1956) and in its own laboratories ($243,500 for fiscal 1956) at the magnificent new Clinical Center at Bethesda. Though their funds have been too limited to meet the total need, the importance of this new Institute to the furtherance of research in the sensory diseases cannot be underestimated. Since the Congress saw fit to create this vital arm of the Public Health Service in 1950 (Public Law 692) it has become a primary source of support for research projects such as are being conducted in our own laboratories at the Massachusetts Eye and Ear Infirmary, and in those of the relatively few other similar hospitals as well as the medical schools throughout the country.

The growth of Government support of research in ophthalmology has indeed come a long way since the year 1948 when, according to Federal Security Agency figures, only $70,340 was spent for this purpose. But, notwithstanding the progress which has been made, a great need for increased support of research into the fundamental and basic causes of blindness remains.

You may also be interested to know that it was as recently as 25 years ago that the first privately endowed eye-research laboratory in the country was established. I refer to the Howe Laboratory of Ophthalmology which is located at our hospital and operates jointly under our aegis and that of the Harvard Medical School. The Howe Laboratory has long been known as a pioneer in clinical research on the eye and in the development of career opthalmic investigators.

Even today there are relatively few laboratories of any size conducting research in opthlamology. There is, of course, the Wilmer Institute at Johns Hopkins in Baltimore, the Wills Eye Hospital in Philadelphia, the Kresge Eye Institute in Detroit, the Poctor Laboratory in San Francisco, the Presbyterian Hospital at Columbia in New York, the Eye Research Laboratory at Tulane University in New Orleans, and a very few others throughout the country.

I did not mean to slight anyone there. Those seemed to me, of those that came readily to mind, the larger ones in the field.

I have left until last the Retina Foundation in Boston which, although a separate charitable corporation, is closely affiliated with our Massachusetts Eye and Ear Infirmary as well as with the Harvard Medical School. This latter group of laboratories, conducting very basic research on the eye, was founded in 1950, as a direct outgrowth of the mounting numbers of persons being treated at the infirmary for retinal detachment, one of the most prevalent forms of blindness.

Although I propose to mention the Retina Foundation again as a classic example of the need for such legislation as you presently have before you, I believe you will learn more of the detailed fund-raising problems confronting this youthful but highly promising organization when its director, Dr. Charles L. Schepens, appears to testify on the 18th.

I should like to thank the chairman and Mr. Layton for their courtesy in rearranging the schedule so that Dr. Schepens can appear next week because of his heavy schedule.

The CHAIRMAN. We will be happy to have him here on the 18th.

Dr. JACOBS. Thank you, sir.

76924—56——7

It is obvious that the pursuit of any research depends on four main facts. First, there must, of course, be a need; there must be problems to solve. Second, the gifted and visionary investigator, the man of ideas, whose personal endowment embraces technical proficiency and skill, must be available before any worthwhile research can be undertaken. In the third place, funds must be found to support both the individual and his work. Finally, adequate laboratories in which the research will be done must be provided. One can have the most pressing medical problems to solve, gifted men ready and willing to devote their lives to their solution, and ample funds to support the work, but without the space, without the laboratories, the special equipment, and other necessary facilities, there can be no research.

One might argue that many of the world's most striking medical discoveries have come from the obscure, lone investigator whose work was done in a garret, but I am sure I need not inform this committee that this phenomenon will occur with far less frequency in the present and future. The advances which have been made in all the sciences within recent years have resulted in an ever greater interdependence of each specific discipline on every other. In medical research, one today finds that it is the joint effiort of doctors and scientists, trained in such disciplines as chemistry, biology, physics, and even electronic engineering, to mention only a few specialty fields, which results in progress being made. This team approach to medical research naturally necessitates bigger and more elaborately equipped facilities than were once considered adequate for the hospital or medical school.

In addition to the need for additional research facilities, there are throughout the country all too many existing medical research laboratories whose outgrown and outdated facilities serve only to limit the scope and impede the progress of an already difficult and often frustrating task. To illustrate, I would mention again the Retina Foundation at our own hospital in Boston. Here 28 individuals, 24 of them professional and technical, are crowded into a 5-floor former tenement building some dozen city blocks from the other buildings of the hospital, its patients, and clinics. The present building is both inefficient and inadequate as to size, there being only 8,000 square feet altogether as against a need for nearly twice this space. Furthermore, even this wholly unsatisfactory home for the foundation must soon give way to the urban renewal and redevelopment project planned for this section of Boston.

There is no additional space available at the Massachusetts Eye and Ear Infirmary to rehouse the Retina Foundation. In fact, we only recently completed a survey as recent as a week ago which indicates that our other laboratories must be expanded by some 20,000 square feet which, of course, is over and above the space requirements of the Retina Foundation.

The cost of erecting and equipping these desperately necessary research facilities for all our existing laboratories as well as the Retina Foundation has been estimated at something over $1 million.

I might insert there that these are just immediate needs as we see them, without projecting into the long-range future.

We recognize that our needs, large as they may seem to us, are only a very small fraction of the Nation's total needs for medical research

facilities. With this in mind, it seems clear that if this problem is to be met, assistance from the Federal Government such as is proposed in S. 849 must be forthcoming. Other than the very few individual citizens capable of making substantial contributions to this type of thing, the private foundations have become the main non-Federal source of support. Obviously the total need far exceeds their capacity to give. For example, I would cite the recent Ford Foundation grants to the hospitals and medical schools of the country. In total this program amounted to $290 million. Of this staggering sum, we received only $76,000 as our share. In no way, of course, do I wish to minimize the sincere gratitude which we feel for this grant, nor to minimize the good which it will do. I am emphatic in that, of course. However, as set against our $1 million research construction needs, it appears small indeed.

It has been my experience that the major foundations who will give to so-called bricks and mortar are relatively few. There are many foundations which support research directly by making project grants and there are many more which support it indirectly by supporting individuals on a training or fellowship basis or by endowing scholarships in one manner or another at the medical schools. Important as this support is to the total problem of the advancement of knowledge through medical research, it does not help provide the facilities for the pursuit of this work. The fact that this bill provides for the use of Federal funds on a matching basis is of great importance. That this will provide great stimulus to institutions, such as my own, to find nongovernmental sources for the balance of the needed moneys is obvious. However, the Government grants will of themselves give great impetus to further private giving throughout the country. I feel confident that there is much added persuasion in the solicitation of these private contributions if one has not only the cause and the need to plea but additionally can make clear that if the contribution is not forthcoming many thousands of dollars, already in hand, may have to be turned back.

In conclusion I should like to say that we strongly favor this bill, and believe that it will go far in bringing nearer the day when many of our present dread diseases may be conquered and eliminated.

I thank you for this opportunity to appear before you.

The CHAIRMAN. Thank you, Mr. Jacobs, for your interest in the legislation and for the statement you have made before the committee.

There was just one question that I had. On page 6 of your statement:

> There is no additional space available at the Massachusetts Eye and Ear Infirmary to rehouse the Retina Foundation.

Mr. Crockett, from Massachusetts, one of the witnesses we had yesterday, showed us some pictures of buildings more than 100 years old. It seems to me, if I recall correctly in one portion of one of these 100-year-old buildings, the Retina Foundation is now located, is that correct?

Dr. JACOBS. That is correct. The Massachusetts General Hospital with the Eye and Ear Infirmary directly abutting occupies the street frontage and the Retina Foundation is behind. It is in a building that is surely over a hundred years old. That whole area is very, very antiquated and it has been proposed, but not yet approved, as a target project under the Federal urban redevelopment section.

The CHAIRMAN. As I recall it, Mr. Crockett said the building was erected in 1843.

Dr. JACOBS. I am not surprised. If I may go one step further, I might say that not only are we hemmed in, but even the buildings we have, with a few exceptions—a few new floors that we recently added—that our buildings go back into the 1800's. Beyond the needs I stress here, we will have many more for replacement of existing facilities.

The CHAIRMAN. Do you have any questions, Mr. Heselton?

Mr. HESELTON. Of course, I want to welcome you here. I think it is splendid that someone from that fine institution would take the time to come before the committee.

Dr. JACOBS. Thank you, sir.

Mr. HESELTON. I was interested in trying to place the building in terms of the Chairman's question.

Dr. JACOBS. We are located on Charles Street at the corner of Fruit, just before you come to the Massachusetts General. We are in the first building on the corner of Fruit Street, and next to us is the Phillips House.

Mr. HESELTON. You are close to the Phillips House?

Dr. JACOBS. Yes; we are. Although completely separate from the Massachusetts General, they operate very closely with them. We are a specialty hospital going back to 1824, specializing in eye, ear, nose, and throat medicine. We complement the services of Massachusetts General, and they complement ours.

Mr. HESELTON. From a practical point of view, it is distinctly to the advantage of both the staff and the patients for you to be located in the general vicinity of the Massachusetts General.

Dr. JACOBS. That is correct, sir. As a matter of fact, we are in a particularly difficult position for that very reason because there are sites which could be obtained elsewhere in Boston to begin over again, but by virtue of this relationship with MGH, we are there frozen just as much as they are.

Mr. HESELTON. I do know of the tremendous development there has been in recent years on Route 128. Are there any hospitals, infirmaries, or health institutions being erected there where land is available?

Dr. JACOBS. I cannot say of my knowledge, sir, other than that I do know that the Newton Wellsley Hospital is a quarter of a mile distant from Route 128. I have not seen any new construction in that area.

Mr. HESELTON. Do you qualify under the Hospital Construction Act?

Dr. JACOBS. Do you refer to Hill-Burton?

Mr. HESELTON. I refer to the Priest Act, otherwise called the Hill-Burton Act.

Dr. JACOBS. Yes, sir. We qualified, and in fact were recipients of aid to the tune of—this is from memory and I would rather not have the figure recorded—somewhere in the neighborhood of a quarter of a million dollars in 1948 and 1949. That was used for construction. It was extremely helpful to us. It enabled us to add a fifth floor for private patients which has been of inestimable help to us.

Mr. HESELTON. I have some knowledge locally of the excellent work that has been done in the development of general hospitals in my district and adjoining districts, and to some extent I know something

about the overall situation. Is your institution working with the State authorities in terms of an additional grant or grants that may be helpful?

Dr. JACOBS. That is correct, sir. As of the present time until such time as there might be further funds made available by extending this important legislation, we would be out on a priority basis for a second go-around before others obviously have had their first crack.

Mr. HESELTON. I am a little uncertain in my mind. We have attempted to establish a sound and tested program of assistance to just such institutions as your own. I grant not so much is appropriated as some of us would like to see appropriated. But that too is on a matching basis.

Do not misunderstand me. I thoroughly agree with the approach this bill takes, with some modifications I think ought to be written in by this committee. Still I am a little puzzled as to whether on the one hand you have a proven, successful, existing program which could be expanded in contrast to the possible beginning of another program which might result in an overlap, an unnecessary administrative problem and an unnecessary administrative cost. I do not expect you to answer that positively at the moment. It is the sort of thing that I hope someone will address himself to before we finish the hearings.

I did want to ask two other questions. One is because of something which I read last night. I do not know much about it. I understand there is pending before the Massachusetts Legislature, which is now in session, either in committee hearings or perhaps in a committee report before the House, a proposal for a new corporate device in Massachusetts with certain persons designated as the original incorporators, including our former colleague, Governor Herter. It is intended to encourage the receipt on a voluntary basis from individuals of additional moneys. You referred to this and referred to the fact that you do have some funds that you might have to turn back. Is that what you said?

Dr. JACOBS. No, sir. If that was the inference, I apologize. I had in mind simply making the point that if I, for example, as an individual, went out pleading for funds on behalf of my institution, that it would be considerably more compelling if I were able to say to the prospect that there were Government funds which were available to this amount and that if the prospect in turn did not come up with a contribution, then these Government funds would have to be turned back.

Mr. HESELTON. I understand. In the next to the last paragraph, you said that if the Federal contribution is not forthcoming, many thousands of dollars already in hand may have to be turned back. I wondered why that should be, both in terms of the tremendous efforts that have been made in our own communities to match funds appropriated under the Hospital Construction Act, and also in terms of this possible new development as far as the State is concerned.

Mr. JACOBS. I perhaps, Mr. Heselton, and Mr. Chairman, should amend my statement and put quotation marks around the words "In hand", because I meant that only figuratively, rather than actually. I was thinking of it in terms of discussion that one representing the hospital may have with a prospective donor.

Mr. HESELTON. Prospective donors who would give if there were other moneys available to make the total.

Dr. JACOBS. Yes, sir.

Mr. HESELTON. I notice that you specified in addition to Massachusetts Eye and Ear, the institutions at Philadelphia, Detroit, San Francisco, and New Orleans and New York, and said that there were a few others around the country. The reason I want to ask this question is that a witness the other day raised the question which still puzzles me as to whether the emphasis should be laid—and I think it should be administrative rather than legislative—on the improvement of existing facilities for the time being, at least, or on the creation of new facilities. Having in mind that we have a good spread nationwide, generally speaking, of excellent institutions, do you care to express any opinion where the emphasis should be placed?

Dr. JACOBS. I would be very happy to express an opinion. Obviously I don't feel qualified to feel that I should determine public policy. However, I do feel that the most forward research work, both present and as we might view it for the future, is now taking place and will take place at the medical centers that are now in existence. By that I mean specifically around, if not directly within, the several medical schools of this country. In our own instance, we are directly affiliated as one of seven hospitals with the Harvard Medical School. To separate ourselves from that affiliation, I think, would limit very definitely and might even end a great deal of the fruitful work we have done in the past or we might anticipate doing in the future.

Mr. HESELTON. You are undoubtedly aware that in the Senate version of the bill as passed there is a sort of rigid regionalization suggested. That has come in for some inquiry on the part of some members of the committee, and I think there is some feeling that it would be better handled administratively with the type of language which the Chairman has in his bill which followed the original National Science Foundation Act. I take it as far as you are concerned with respect to this particular activity for the next few years or the foreseeable future, it would be much more desirable that we are sure to perfect what we have, rather than to spread our fire.

Dr. JACOBS. I feel that very strongly. I do feel it would be very helpful, although I had not intended to bring it up initially, if the administration and the dispersion of these funds be handled on a basis similar to that which the Chairman's previous bill had, rather than as it stands in this form. I think that would be an infinitely preferable piece of legislation.

The CHAIRMAN. Mr. Hayworth, do you have a question?

Mr. HAYWORTH. No, sir.

(Discussion off the record.)

Mr. HESELTON. May I make this comment, that there is a very encouraging interest that has been shown over a period of years by a number of the larger optical companies, including one or more of our own in Massachusetts, but their interest has been quite naturally in terms of scholarships and fellowships and project research rather than in the problem of construction of buildings and facilities which you outlined this morning.

Dr. JACOBS. That is absolutely correct, sir, to my knowledge.

Mr. HESELTON. Thank you.

The CHAIRMAN. Dr. Jacobs, I have just one further question. It relates to a question Mr. Heselton asked earlier with reference to funds available under the Hospital Survey and Construction Act.

There is a provision in the bill H. R. 9013 recommended by the Department of Health, Education, and Welfare, which I introduced, to the effect that no institution is eligible for a grant under this proposal that we are now considering if they are eligible for grants under title VI, which is the Hospital Survey and Construction Act, unless the Surgeon General determines that such facility is especially designed for, and will be principally used for medical or dental research or teaching, and does not constitute a project or part of a project with respect to which Federal grants have been approved under title VI.

My question is, assuming that that limitation should be written into the final draft of this legislation, is there any portion of your program or your anticipated program that the Surgeon General might find to be eligible because it is designed primarly for medical and dental research and for teaching, rather than a regular hospital?

Dr. JACOBS. That is very definitely true, Mr. Chairman. I tried to limit myself this morning to our problems of research construction as being pertinent to the legislation being heard today. We do have, of course, these other needs which would fall under the extension of the other act. But the separation with that clause that you mentioned would be entirely satisfactory and helpful to us.

The CHAIRMAN. Thank you very much, Dr. Jacobs. We appreciate your testimony.

Dr. JACOBS. Thank you, Mr. Chairman, and gentlemen.

The CHAIRMAN. Our next witness is Dr. Shailer Peterson, secretary of the American Dental Association's Council on Dental Education. We are happy to have you here.

May I say to you, Doctor, and to other witnesses who may follow, if you so desire, you may brief your written statement with the assurance that it will be included completely in the printed record. You may proceed as you desire.

STATEMENT OF DR. SHAILER PETERSON, SECRETARY, COUNCIL ON DENTAL EDUCATION, AMERICAN DENTAL ASSOCIATION, CHICAGO, ILL.; ACCOMPANIED BY BERNARD J. CONWAY, SECRETARY, AMERICAN DENTAL ASSOCIATION COUNCIL ON LEGISLATION

Dr. PETERSON. Thank you, sir.

Mr. Chairman, I am Dr. Shailer Peterson of Chicago, Ill. I am secretary of the American Dental Association's Council on Dental Education. I am here today to present the association's position on S. 849, a bill designed to stimulate the construction of vitally needed research facilities at non-Federal institutions. With me is Mr. Bernard J. Conway of Chicago, Ill., secretary of the association's Council on Legislation.

OBJECTIVE OF S. 849

In substance S. 849 would establish a 3-year $90 million program of grants-in-aid to non-Federal institutions, such as the dental and medical schools, to defray the cost of constructing and equipping facilities for research in connection with crippling and killing diseases.

S. 849 establishes four fundamental premises upon which the need of Federal support for the construction of non-Federal health research facilities is based. In essence, those premises are, first, that certain devastating diseases cause widespread suffering and weaken the Nation's economy and military strength; second, that scientific development of health research is retarded in many areas where research skills are now available; third, that attracting more young scientists to health research depends primarily upon making facilities available for their endeavors; and fourth, that freshness of vision and exploration of new ideas will be enhanced by making research opportunities available in all regions of the country under competent local auspices. It would be difficult to challenge the validity of those premises. The first is particularly applicable to the Nation's health problem and economic burden caused by dental disease. The others portray a pattern of neglected research potential that has materially retarded the development of an adequate dental research program in the United States.

THE IMPACT OF DENTAL DISEASES

The physical, social and economic toll taken by oral diseases is staggering. Perhaps the best reflection of the Nation's dental burden is the annual cost of dental health care borne by the civilian population. About $1.5 billion is spent annually for private dental health services. Additionally, the Federal Government spends more than $100 million annually for the dental health care of members of the Armed Forces and veterans. Despite this tremendous expenditure, less than one-half of the population obtains adequate dental health care.

The cost of dental disease in terms of suffering and ill-health, however, is even more startling, for example:

Almost all persons suffer from oral disease at some time during their lives.

Dental caries, or tooth decay, is the most prevalent disease in the United States.

Seventy-five percent of the people who lose teeth lose them because of periodontal diseases, so-called pyorrhea.

Twenty percent of our children suffer from severe deforming irregularities of the teeth and jaws.

One child out of every 800 born alive suffers from the severe deformity of cleft palate, sometimes called "harelip."

Twenty-five percent of the population above the age of 15 years is wearing one or two full dentures as a result of previous dental disease.

There are definite relations between oral infections and serious heart ailments such as rheumatic heart diseases and subacute bacterial endocarditis.

Nine percent of all cancers occur in parts of the mouth related to the dental structures.

These are just some of the serious dental disease problems for which there is an immediate and urgent need for an intensified research attack.

RESEARCH IN THE DENTAL SCHOOLS

A vigorous attack upon the dental disease problem depends primarily upon research resources within this Nation's dental schools.

The schools are the major contributors to our dental research effort. They are today making commendable progress in investigating the causes of all known dental disorders. But in order to meet their full responsibility, the dental schools must greatly increase their research endeavors. One of the great difficulties faced by the dental schools is obtaining the vast sums needed for expanding and equipping their research facilities.

FINANCIAL NEEDS OF DENTAL SCHOOLS

The Council on Dental Education recently completed a survey of the dental schools to determine their minimum need for additional facilities and equipment for all purposes. This survey disclosed that the schools have spent over $40 million during the last 5 years for new buildings, for remodeling and expansion of buildings, for new equipment and for replacing and repairing equipment. All of the past expenditures reported were made by the schools out of their own resources; to our knowledge, no outside assistance was provided.

The expenditures made by the institutions are particularly significant when one recognizes that, each year, it costs an average dental school between $800 and $1,000 (the differential between tuition and cost of operation) to education one student. The average dental school spends about $200,000 annually to make up the difference between tuition and clinic revenues and the actual cost of operating the school. With the schools required to expend such large amounts merely to continue the conduct of their programs, it is understandable that they are limited in the amount that they can spend on new buildings and expansion.

In the survey on recent expenditures, the dental schools reported their minimum need for additional funds for construction of new buildings, for expansion and remodeling of existing facilities, for new equipment, and for replacing and repairing present equipment. The 43 schools reported that they had an immediate need for $40 million in additional funds. It should be emphasized that most of the schools based their estimates on their need for the next year, rather than for a 3- or 5-year period. It should be kept in mind, too, that the estimates were given without any knowledge that outside financial assistance might be available. I believe it is imperative that the schools of dentistry continue to improve their programs. That means, of course, that the schools must have the best available facilities and equipment. The cost of modern research facilities and equipment is tremendous. But research is a highly important part of the dental school curriculum; it is an essential discipline for the practicing dentist as well as for the teachers and dental scientists which the dental schools must supply.

As you are no doubt aware, the council on dental education serves as the official accrediting agency for the dental schools. In my capacity as secretary of the council, I have visited all of the dental schools and am aware of their long-range needs. Nine of the schools have physical plants which are reasonably adequate; they do, however, require some minor expansion of physical facilities and additional equipment. Three schools have modern plants but require additional facilities to provide for their present enrollment and for the increased enrollment which they wish to make possible shortly. The

remaining 31 of the 43 schools need considerable funds for new buildings to modernize their total facilities, particularly to modernize their research laboratories. Conservatively, it can be estimated that each of the 31 schools requiring new buildings will need about $1.5 million to modernize its facilities. Each of the 3 schools which must expand its present facilities needs $1 million or thereabouts. Additional equipment needs for all 43 schools would amount to about $10 million. The 43 dental schools now in operation, therefore, need at least $60 million during the next 3 to 5 years; about $15 million of that total is needed for expansion and equipment of research facilities.

Four new dental schools will soon be accepting students; 2 within the next 6 months, the other 2 within 18 months. A minimum estimate of their financial requirements for buildings and equipment would be $15 million; about $3 million of that total will be needed to construct and equip their research laboratories. Thus, the dental schools could conservatively use, during the next 3 years, at least $75 million for construction and expansion; $18 million of which is needed for construction, expansion, and equipment of their research facilities. There is every reason to believe that a considerable portion of the $90 million in matching grants proposed by S. 849 could be profitably utilized by the dental schools. It also is reasonable to assume that the required matching funds would be forthcoming as a result of the stimulus supplied by available Federal funds.

Incidentally, these estimates on the schools do not include some of the new institutions which we know will be opening schools in the near future. For example, there will be a new school in Oklahoma. There will probably be an other one in South Carolina. The University of Colorado is contemplating a new one. There is also some thought about a school in the New England States. It might either be in Massachusetts, Connecticut, or Rhode Island, according to present plans.

ASSOCIATION RECOMMENDATIONS

The association supports the objectives of S. 849. One of the goals of the National Dental Research Act (Public Law 755, 80th Cong.) is to foster and expand dental research in non-Federal institutions. To achieve that goal, the schools must have financial assistance in the expansion of their facilities. In addition, the association has long supported the principle that Federal funds should be made available to dental schools which are not able through private resources to support their programs adequately. On four occasions the association has testified in favor of legislation designed to assist dental and medical schools to expand and improve their facilities and equipment. One of the primary factors in establishing the association's policy in support of Federal grants to the dental schools was the tremendous cost of constructing and equipping their research facilities.

In evaluating the specific provisions of S. 849, the association is concerned principally with three of its important feature and implications.

The purpose of S. 849 is spelled out in section 702. That section indicates that the grants will be made available to schools of dentistry among other institutions. That section also provides that the facilities constructed and equipped with grant money are to be devoted to crippling and killing diseases. The association recommends that

dental disease be added to the category of listed diseases in section 702. Recently in testimony before the Senate Subcommittee on Health on S. 3246, a bill to increase the authorization for the National Institute of Dental Research building, Senator Hill, sponsor of S. 849, indicated to a representative of the Department of Health, Education, and Welfare that he did not consider that S. 849 would be limited to research into diseases listed in the bill. The Department witness indicated that he believed S. 849 would be so limited. To prevent the possibility of too stringent limitation on the availability of the grants provided within S. 849, then, the association urges the inclusion of dental diseases as a specific category in section 702.

The formula for equalizing Federal grants among the four geographical regions designated in the legislation may arbitrarily restrict development of worthy research projects. The association suggests that this committee evaluate the disposition of the grants periodically, should S. 849 be enacted, to determine the practicability of the formula. The regional plan for allocating funds does appear to be equitable in terms of the location of the 43 dental schools. There are presently 8 schools in region I, 10 in region II, 14 in region III, and 11 in region IV. Two more dental schools will shortly be added to region I: Seton Hall and Farleigh Dickinson Colleges in New Jersey are completing arrangements this year for new schools of dentistry. Two more will shortly be added to region II: West Virginia University and the University of Puerto Rico have approved the addition of schools of dentistry to their programs.

Finally, the association suggests that a provision be added to S. 849, or that the committee indicate in its report on the bill, that no attempt will be made by any Federal official or agency to exercise control over, or prescribe any requirements with respect to, the curriculum or the administration of any non-Federal institution, or the admission of applicants thereto.

In behalf of the American Dental Association, I wish to thank the committee for the opportunity of presenting the position of the association on this important legislation.

The CHAIRMAN. Thank you very much, Dr. Peterson.

On page 7 of your statement, you brought to the attention of the committee again a question that has been previously brought up in these hearings, and that is whether the legislation should include by name the diseases for which funds would be made available to provide facilities for research. That question has been discussed previously.

It is your feeling that if a list was included, that dental diseases be added to the list. There is some feeling among committee members, I believe, and it has been expressed by 1 or 2 witnesses, that perhaps by including we might infer the excluding of all others, which I think is very definitely not the intention of the committee. I think Senator Hill made that clear insofar as he was concerned in the Senate testimony. Yet the language that specifically lists diseases for which funds might be made available would be in a sense in your opinion excluding all others?

Dr. PETERSON. It is my understanding that that connotation could be placed upon it in view of the statement made by this one Department representative. However, as you have pointed out, certainly in the statement as I read it these lists are prefixed by the term "such as,"

making them only representative. I think we might take this point of view. If the committee could include in its report some emphasis on the fact that the listed diseases should not be considered all-inclusive, that would probably serve our purposes adequately.

The CHAIRMAN. I notice also, Dr. Peterson, that it was your opinion, I believe as expressed on page 6 of your statement, that there is every reason to believe that a considerable portion of the $90 million of matching grants proposed in this legislation could be profitably utilized by dental schools.

Of course, the bill we are considering is a 3-year program with a total of $90 million as the authorization. As I stated on the opening day of the hearings, it is my own feeling that perhaps when the committee has heard all the testimony, and takes this bill up for consideration in executive session that we may expand the bill over an additional period of time, and for an additional amount of money.

In the bill which this subcommittee considered last year for aid to medical and dental education there was an authorization of $50 million a year for medical schools and $10 million for dental schools. I believe that was the figure.

Dr. PETERSON. That is right, sir.

The CHAIRMAN. I hope that we can arrive at some figure and some proper period of time to do the best job in the field because it is a job that very greatly needs to be done in the opinion of the entire committee, I believe.

The CHAIRMAN. Mr. Roberts.

Mr. ROBERTS. Mr. Chairman, you asked the question I had in mind.

The CHAIRMAN. Mr. Hayworth.

Mr. HAYWORTH. Dr. Peterson, I would like to know how many people are graduated from dental schools each year?

Dr. PETERSON. We accept 3,350 freshmen, and of that number we lose only 7 percent. Therefore, we are graduating roughly 3,100 every year from the 43 schools.

Mr. HAYWORTH. Has that number been increasing recenlty?

Dr. PETERSON. Yes, it has been. As much as 6 years ago we were losing, in our mortality of dental students, approximately 14 percent. Now, through better methods of selection, through aptitude tests and very large reservoir of applicants we have reduced that to 7 percent loss during a 4-year period. Only 4 percent of that 7 percent is due to academic failure, and the other 3 percent is for unpredictable matters, such as economics, and so on.

Mr. HAYWORTH. Immediately after the war, I was personally very much aware of a shortage of dentists throughout the country. In our community it took about 6 months to get an appointment. How is that situation now over the entire country?

Dr. PETERSON. The situation has eased considerably, but there is still a great need for more dental service being made available. It is continuing to be the objective of the dental schools to increase and expand their facilities as much as possible. Following the war, we had as many as 12,000 applicants. All of the schools since that time have tried to increase their facilities and every one of them has increased rather markedly.

Mr. HAYWORTH. I noted in medical schools that deans are very reluctant to increase their enrollments. They have certain limits, say 75 or 125, which they think are maximums for their particular school.

Does that hold in dental schools in the same way, or are there other limiting factors?

Dr. PETERSON. There are several limiting factors in any professional school. Some of them are in terms of the availability of clinical patients. In our work on the Council, in evaluating the establishment of new schools, we try to have them established in large cities. Therefore, among our schools today we probably have only 1 or 2 where patient procurement is any problem or restricting the number of students that can be enrolled. In all other cases it is purely a matter of the physical facilities of the plant.

Of course, dentistry, like medicine and other professions, is rather unique in the sense that when you have lost a student during the first or second year, he is lost completely and there is one fewer dentist to serve the Nation's health needs. Consequently, that is another reason why the schools have redoubled their effort in trying to have better criteria for the selection of students, and that has accounted for our low mortality in student loss. In other words, I think the schools are doing a wonderful job in their selection and using the facilities to the utmost. They have the desire to expand their facilities wherever possible. They have shown how anxious they have been to do that without help from outside sources, from the figures I have shown you.

Mr. HAYWORTH. You said that somewhat over 3,000 are being graduated each year.

Dr. PETERSON. 3,100.

Mr. HAYWORTH. You say there are 43 schools; would that be 47?

Dr. PETERSON. We add 2 this next year, which brings it to 45. The University of West Virginia and Puerto Rico will be added the following year, bringing it to 47.

Mr. HAYWORTH. Those are all that are in the offing?

Dr. PETERSON. Those are the only ones that have definite commitments for new buildings with budgets, and so on, firmly established. Schools such as the proposed one at Oklahoma, and also at the University of Colorado, have some promise of funds, but no starting date has been established.

Mr. HAYWORTH. Taking the 43 figure that you mentioned and dividing that into 3,000, would get about 80 students per school, which I assume is the average size of a beginning class?

Dr. PETERSON. That is right.

Mr. HAYWORTH. What is the range of the size of classes, the smallest and largest?

Dr. PETERSON. The smallest class is at Harvard which accepts 16 students, and the largest is at Temple, which accepts 126.

Mr. HAYWORTH. One is as small as 16?

Dr. PETERSON. Yes.

Mr. HAYWORTH. Can you account for that?

Dr. PETERSON. Harvard has an unusual program which has been, in our opinion, and I believe it is shared by their administrators as well, semiexperimental, in the sense that approximately—they were officially inspected in 1946—8 years ago they had what was then a new program fully developed and in operation, which called for a 6-year professional term. In other words, all students were admitted the first 2 years for both medicine and dentistry on exactly the same basic criteria. At the end of those 2 years the student either went into medicine or dentistry, but by taking an additional 2 years, he could obtain

both degrees. The purpose behind the program was essentially to prepare research workers and teachers in the field of both medicine and dentistry, people with double degrees who could do that type of work. Because of their facilities, I understand, they were forced to limit their enrollment as drastically as it now appears.

Mr. HAYWORTH. Are most dental schools connected with large universities and with medical schools?

Dr. PETERSON. All of them are connected with large institutions, and all except one has a direct connection in terms of its complete administration. The only one that is not tied up in every respect is the one at San Francisco, the College of Physicians and Surgeons, which has a loose affiliation with Stanford University. As far as their affiliation with medical schools is concerned, I believe there are 27 out of the 43 that are located and closely affiliated with medical institutions.

Mr. HAYWORTH. Some of the training and some of the research work are closely related?

Dr. PETERSON. Very definitely, particularly because of the basic sciences. There is no single pattern for the curriculum in dental education any more than there is in medical education. We believe that it should be the jurisdiction of the institution to find the best way to use their own facilities and faculty to provide the end product, which is the successful graduate with all the competence to practice dentistry.

So, then, we even have dental schools side by side with medical schools that still duplicate some of the work. Whereas we have other institutions where they have what we might say is a third professional school of the basic sciences which provides like a service department the basic sciences for pharmacy, nursing, medicine, dentistry, and the like.

There are many kinds of patterns. There are probably 12 or 15 different types of patterns of administration utilizing medicine, dentistry, and the basic sciences.

Mr. HAYWORTH. Thank you.

The CHAIRMAN. Are there any further questions?

Mr. HESELTON. Yes, Mr. Chairman.

Doctor I was very much interested in your statement, which I understand is the official statement of the American Dental Association, as well as the Council on Dental Education.

Dr. PETERSON. That is right.

Mr. HESELTON. I am going to take the liberty of not asking you questions but rather of reading into the record something I would like to have you comment on because of your position. I would rather not at the moment identify where it came from. I can assure you I believe it is from an extremely competent person who has studied this matter and has attained a position in his particular profession that is of recognized stature. I am sorry I did not realize you were coming in today, or I would have undertaken to telephone to see what I could have done about putting it a little more specifically, and I may be able to do so later. You may not want to make any comments.

I am very much interested in the approach. I realize, glancing over the bill, it does not address itself to any pending legislation, particularly H. R. 9013, and it may well meet with vigorous objection on the part of some people, but I think it is worthy of consideration.

May I read this?

The CHAIRMAN. You may.

Mr. HESELTON. With permission, I will insert the entire statement if it seems advisable, and with permission to Dr. Peterson to defer any comment he wishes to, and to file any statement he wishes to in connection with it.

From the standpoint of the at-present supply of health manpower and its associated services, there is no question but that the problem is an urgent one. However, urgent or not, it is out of the question to produce physicians, surgeons, dentists, and nurses overnight, not to mention the complete dislocation of current teaching facilities if such an impossible project were attempted. It remains, I think, to decide which or how many of the many vast gaps in our educational and health structure should be tackled first, on the hypothesis that, in temporarily meeting one shortage, others far more grave might be created. The physician may tell you that a supply of X number of phsyicians would solve the problem; the surgeon wants more surgeons, the dentist wants more dentists, and the director in nursing wants an immediate and gigantic increase in the supply of student and graduate nurses. It depends on whom you ask as to what reply you may receive, and the best organized group that shouts the loudest is likely to receive a priority not justified by the long-range view of the true facts. Cold reason suggests an objective approach to all of these problems, even if a generation of dentists or physicians or whatever is sacrificed in the process. Such a conclusion will doubtless disappoint many, including myself, who have hoped for relief from pressure and far too much overwork, but it is the only sane approach that should be considered.

If the manner of my thinking has been correct, then the Office of Defense Mobilization will benefit by some changes and additions in its Health Resources Advisory Committee, for it is impossible to separate health from education any more than poverty can be separated from ignorance and fear. As of January 1, 1955, the Health Resources Advisory Committee consisted of 7 phsyicians, 1 dentist, and 1 registered nurse, distributed fairly impartially as heading up groups that might be expected to have special interests involved. No new legislation should be necessary to broaden the scope and personnel of this committee; indeed, for the special purpose intended, the present makeup of the committee appears quite satisfactory, but no one thereon is qualified to be completely impartial as to discussions or decisions affecting other than each one's particular group. Consequently, I suggest that, at the discretion of the Director of the Office of Defense Mobilization, the following additions to this special committee be given serious consideration.

1. Four college or university presidents, selected partly because of their known ability, and partly because of their physical location, with powers to delegate their particular responsibilities to one or more of their respective heads of departments.

I am personally very much interested in the second suggestion, because I think it does address itself to something that is of great importance in this overall problem.

2. Several headmasters of accepted independent secondary schools, selected in much the same manner as the presidents of colleges and universities and with the same power of delegation of responsibility.

3. Suitable representation from both public and parochial schools, selected both at the elementary as well as the secondary school level, and with the same powers of delegation of responsibility already suggested under divisions 1 and 2.

4. Suitable representation from management as well as from industry, for each faction has an understandable interest in the perpetuation of citizens now born, and citizens yet to come.

5. I believe that I have noticed that there has been no provision for the inclusion of any qualified person as to taxation, either on a State or a Federal income level. Both should be represented, or either or both should be expected to serve in an advisory capacity when or if asked.

I realize fully that many of these suggestions violate all rules of creating a successfully working committee in any field. The detailed organization of this group must be left to the wisdom of the Director of the Office of Defense Mobilization or to a person or persons selected by him. All members of this committee, wherever, and however selected, will serve without remuneration, although legiti-

mate expenses for travel, where needed, and for secretarial maintenance, should not only be welcome, but vital.

While time is extremely valuable—

and I want to underline this because much as I am interested in this proposal, much as I hope we may be able to do something constructive, I am realistic enough, I think, to know that with the program that lies ahead of the Congress and the time that is available, we simply cannot afford to rest our complete effort to meet this problem, on the possibility that this Senate bill or a version of the chairman's bill may be passed and the conference may result in an agreement between the two Houses, and signature by the President.

While time is extremely valuable, and can be wasted, wisdom suggests that sufficient time be allotted for thorough study, and for a comprehensive report, as briefly worded and as concise as possible. Such a report must be available to the proper authorities by January 1, 1957, and may, with luck, and some proper organization, receive the serious and favorable attention of the Congress.

I have understood the President has taken some action toward the creation of a committee or commission or some group that has been mentioned previously in testimony during this particular hearing. I do not know what stage that committee is or what the target date is. I think we have to take into consideration all those factors in reaching our conclusions.

Would you prefer to wait for the transcript and then make any comment you choose or do you care to make a general comment and follow it up with a particular comment later?

Dr. PETERSON. I can give only a personal reaction to the statement you made. This certainly would not be official from either the council or ADA, and probably therefore should be off the record.

Mr. HESELTON. I realize that. You are thoroughly qualified to make a personal statement.

Dr. PETERSON. I would like to have Mr. Conway comment on it, if he would like.

My own reaction is that having committees of the specialized type which we now have, I think they are tremendously valuable because the individuals on those do not have restricted interests as so many people think. I have watched them in operation as I know you have. I believe they not only know enough of the details of the operation of professional schools and professional practice, but they know some problems which lay personnel could not work out.

On the other hand, I think our own operation of our council and our own operation of the ADA and its various agencies would prove that we have a great deal of interest in the use of outside personnel in solving our own problems. Just a few weeks ago, our council in attempting to restudy one of its problems called in lay personnel in great numbers to work with us on restudying our own problems.

So therefore, I would agree with you, or with this gentleman who wrote this document, that having a program set up whereby a committee consisting of educators at the top level, secondary educators, and so on, as well as people in finance, industry, and the like, could give a great deal of help simultaneously to this first committee that is now in operation.

My answer in a nutshell would be this: I don't think either one isolated and alone is the solution. I think that both have to operate in much the same way that your own committee operates, by bringing

in experts in different fields for their advice and counsel. I don't know if one had to set up two committees, which one should have the final authority or final say. That would take a considerable amount of study. I certainly would not be ready to answer that. I think there is a place for both types of committees.

That is a personal opinion. Mr. Conway?

Mr. CONWAY. I would hope that this document that you have read would be made available to us so that we could comment on it at a later date. I think it should be given some study.

Mr. HESELTON. I certainly appreciate your willingness to comment on it. If it seems proper and advisable, you may be certain that the complete article will be made available and identified. If you want to add to what you said, we will welcome further comments.

Dr. PETERSON. Thank you very much.

The CHAIRMAN. Are there any further questions?

If not, we appreciate very much your appearance, Dr. Peterson and Mr. Conway.

Dr. PETERSON. Thank you very much.

Mr. CONWAY. Thank you very much.

The CHAIRMAN. Our next witness is Dr. Joseph M. Babcock, Portsmouth, Ohio, vice president of the American Optometric Association in charge of national affairs.

STATEMENT OF DR. JOSEPH M. BABCOCK, PORTSMOUTH, OHIO, VICE PRESIDENT IN CHARGE OF NATIONAL AFFAIRS, AMERICAN OPTOMETRIC ASSOCIATION

Dr. BABCOCK. Mr. Chairman and members of the subcommittee, my name is Joseph M. Babcock. I reside and practice optometry in Portsmouth, Ohio. In addition to serving as vice president in charge of national affairs of the American Optometric Association, I am also secretary of the Ohio State Optometric Association.

Our national association, like most others in the health field, is composed of individual members in each of the 48 States and the District of Columbia. In most instances the individual joins the local or State association and at the same time becomes a member of the national organization.

There are four groups which provide the services essential to the care and preservation of the vision of our citizens. No doubt most of the members of this committee are familiar with the services performed by the four groups, which taken together provide the visual care for the American people. However, for the benefit of those who may not have this information at their fingertips, may I submit the following by way of introduction:

The optometrists constitute the group especially trained to examine the eyes of their patients for defects in vision. When these are caused by conditions which either partially or wholly require medication or surgery, the patient is referred to a surgeon or medical practitioner. When an abnormality is found to exist which could be corrected or the patient's vision improved by visual training or by the use of spectacles or contact lenses, the optometrist gives the training or prescribes

76924—56——8

the spectacles or contact lenses and in most instances furnishes the patient with the ophthalmic material. Between 70 and 80 percent of those seeking professional advice for their visual problems consult optometrists.

The ophthalmologists are another group. They are physicians who have taken postgraduate work in the eye and have passed examinations given by the American Board of Ophthalmology. They are especially trained to perform eye surgery and to treat diseases of the eye as well as to refract. When an ophthalmologist concludes that spectacles or lenses are needed to improve or conserve the vision of the patient he generally writes a prescription and gives it to the patient to be filled by a dispensing optician.

There is also another group in the medical field known as oculists or eye, ear, nose, and throat men. Any physician may, if he sees fit, use any or all of these terms without complying with any special educational qualifications other than those prescribed in order to engage in the general practice of medicine.

The dispensing opticians are the fourth group. They fill the prescriptions of those optometrists who do not do their own dispensing and also the majority of the prescriptions of the ophthalmologists and oculists.

While the distinction between these four groups is not important as far as the legislation now being considered by this subcommittee is concerned, I thought it might be worth while to make this brief statement. In general, it is well to keep in mind the respective functions performed by these groups.

In all 48 States and the District of Columbia, either by statute or regulation having the force of law, a person now seeking an original license to practice optometry in any of these jurisdictions must be a graduate of an approved school or college of optometry, each of which requires a minimum of 5 years of study at the college level. There are approximately 18,000 optometrists licensed to practice in the United States. This is by far the largest professional group in the visual care field.

There are 12 accredited schools and colleges whose graduates are eligible to make the examinations required to qualify to practice optometry in one of the 48 States or the District of Columbia. The bill divides the States into four regions, and there is at least one accredited school or college of optometry in each of these regions.

Several years ago, the American Optometric Association sponsored the organization of the American Optometric Foundation under the laws of the State of New York. The purposes of the latter organization include:

> To aid and assist in the establishment and creation of sources of authoritative and impartial investigation and experimentation on optometric problems;
>
> To aid and assist in promoting or carrying out research in optometry and in allied and kindred fields and to provide that research and investigations be properly and sufficiently financed; * * *
>
> This corporation shall not be conducted or operated for profit, and no part of the net earnings, or of the properties, or of the assets of the corporation shall inure to the benefit of any member.

Dr. William C. Ezell of Spartanburg, S. C., a past president of the American Optometric Association, is president of the American Optometric Foundation. This Foundation hopes some day to have its own facilities for carrying on research in the field of vision, but up

to the present time it has confined its research activities to allocating funds to graduate students to carry on research in various schools and colleges of optometry which have been accredited.

Our interest in this bill is not only because it would provide funds for research facilities to aid in preventing blindness, but also because of the relationship between vision and nervous disorders or mental illness.

Throughout the Nation, the daily press carries stories of juvenile delinquency. In the vast majority of cases those juvenile delinquents who have been given a thorough eye examination have been found to be suffering from some visual abnormality which in all probability was responsible for the poor showing they made in school achievement. We firmly believe that had these cases been discovered when the first symptoms could have been detected and the pupil provided with a visual correction or visual training, society might have been saved a great deal of money not to mention the heartaches of the relatives and friends of those thus afflicted.

Our association has a special committee which deals with visual problems in schools. Last February it held its ninth annual forum in Cleveland which was attended by more than 200 optometrists and 1,200 teachers from 17 States. The work of this forum has attracted attention in other areas and regional conferences or forums are being held throughout the United States, dealing with this and other subjects pertaining to vision.

Not only is our profession concerned with the visual problems of school children, but also with the similar problems of the industrial worker, frequently referred to as "industrial vision," or "occupational vision." In this age of high speeds and close tolerances clear and comfortable vision of the worker is important not only for his own safety and that of his coworkers, but also for the safety of those who may be using the products which are manufactured or inspected by the worker. The visual efficiency of the worker also has a direct bearing on the profits of his employer.

And again, mental illness even in adults certainly may be aggravated if not caused by visual abnormalities which could and should be corrected. About a year ago a case was brought to my attention of a Government worker who was suffering from severe headaches and nervousness to such an extent that she was contemplating suicide. She was referred to an optometrist, who, after a most careful and painstaking visual examination and analysis, was able to fit her with contact lenses. These so improved her visual efficiency that she entirely recovered from her nervous disorders.

So far, my remarks have been devoted to the visual problems of our schoolchildren and our office and industrial workers. While I trust that never again will this Nation be involved in war, nevertheless I would be derelict in my duty if I did not point out that in warfare which utilizes atomic weapons, guided missiles, and aircraft with supersonic speed, the selection of those on whose vision depends the success of the attack as well as the effectiveness of our defense is of vital importance. Money spent for research facilities in the field of vision, if it contributes to the effectiveness of our national defense, is money well expended.

May I therefore suggest that the bill as passed by the Senate be amended as follows:

Page 3, line 4, after the word "dentistry" insert the word "optometry".

Page 4, line 21, strike out the words "and one additional member who", and insert in lieu thereof the following: "and two additional members, one of whom shall be a duly licensed optometrist and the other".

These amendments, if adopted, will merely qualify optometry schools and colleges for consideration in the program and give our profession representation on the Advisory Council. They will not in and of themselves mean that any of the funds authorized to be appropriated when this bill is enacted into law will be spent for research facilities in optometric institutions, but at least this profession which is devoted exclusively to the visual welfare of our people will be represented on the Council which is to make recommendations to the Surgeon General as to how these funds should be allocated. With these amendments, we favor the passage of this legislation.

The CHAIRMAN. Dr. Babcock, thank you very much for your statement. You mentioned, I believe, that there are 12 accredited colleges of optometry, Are most of these nonprofit?

Dr. BABCOCK. All of them are nonprofit.

The CHAIRMAN. Are any of them State colleges or privately endowed?

Dr. BABCOCK. The majority of them are with State universities.

The CHAIRMAN. I gathered from your statement, which I appreciated very much, that your primary request in this is not so much based on the expectation that funds for research laboratories and facilities might be made available for optometry, as it was that you have representation on the Council. Have I properly interpreted your statement?

Dr. BABCOCK. We think we could lend quite a little help there. For instance, in the last war they selected half a dozen optometrists and they were instrumental in increasing the efficiency of the antiaircraft people. They picked out the right type of man and it increased the efficiency to a great extent.

Also, some of our research benefited the recognition of the planes. Professor Renshaw, of Ohio State, was awarded a medal not long ago for his work in increasing the span of recognition of targets.

The CHAIRMAN. Are there any other questions? Mr. Roberts?

Mr. ROBERTS. I just wanted to comment, Mr. Chairman, on one of the statements that Dr. Babcock made with reference to the special committee of his association which deals with visual problems in schools. I happen to have had some personal experience, and saw the great worth and value of that program. A member of your profession, sponsored by one of the civic clubs to which I belong, instituted a mass examination in our schools in my hometown. I know, from my experience from that, that it has been very helpful. That program has been carried on every year.

As you point out in your statement, I think it undoubtedly has helped in uncovering these defects of various kinds that can be corrected and perhaps save that child from being a bad student, and instead the child was able to do good work in school.

That is all, Mr. Chairman.

The CHAIRMAN. Mr. Hayworth.

Mr. HAYWORTH. Mr. Babcock, your paper and the questions which our chairman asked have cleared up my thinking entirely. It is very illuminating, and I am very glad to have it.

I think you are a little modest, perhaps, in saying that you are not asking for funds. I should think your profession might have problems that could very well come under the purposes of this act.

Mr. ROBERTS. Will the gentleman yield?

Mr. HAYWORTH. Yes.

Mr. ROBERTS. I say it is very unusual that any witness that comes before us on this bill does not ask for funds.

Dr. BABCOCK. We thought if we were on the council we might suggest spending a little money on some particular research. At Ohio State, the optometrists of the State, numbering about 900 active members, raised $100,000 and gave it to the university to further our educational facilities there. So we are not asking for more than we think we deserve.

Mr. HAYWORTH. Thank you.

The CHAIRMAN. Are there any further questions?

Mr. HESELTON. May I ask one question?

The CHAIRMAN. Mr. Heselton.

Mr. HESELTON. Doctor, if I understand correctly, your two suggestions of amendments on page 6 of your formal statement are addressed to the Senate bill?

Dr. BABCOCK. That is right.

Mr. HESELTON. As I recall it, my colleague, Mr. Dies, raised a questiton on the first day of the hearing as to whether it would be advisable for this committee not to adopt the specification of specific categories, but rather to broaden and treat it as an administrative problem in determining where the needs were greatest, and what should be done first, the priorities and so forth. Am I right in my recollection of that?

The CHAIRMAN. Yes.

Mr. HESELTON. I realize that there might be a feeling on the part of some if we did not specify something that they would be lost in the shuffle. I think the other side of the coin is that, if you do specify certain categories, you may run the risk that a good deal less would be done to meet what would be administratively determined to be the greatest need. I think perhaps your comment on the suggestion made by our colleague would be useful to us in our ultimate consideration.

Dr. BABCOCK. I think that the administration should be left to determine the needs. I think, on investigation, for instance, if the council finds out—I think the figures are 2 out of 5 delinquents are suffering from visual handicaps. The individual wants to excel in something, he cannot excel in schoolwork and cannot participate in sports he finally turns to crime, something he can excel in.

I think after investigation this Council would have the prerogative of recommending where the money should be spent and what it should be spent for, I think that would be perfectly all right if the optometric profession is represented on the council.

The CHAIRMAN. Thank you very much, Doctor.

Dr. BABCOCK. Thank you.

The CHAIRMAN. Our next witness will be Mrs. Ruth Berini, executive director of the National Foundation for Muscular Dystrophy, Inc., of New York.

STATEMENT OF MRS. RUTH Y. BERINI, EXECUTIVE DIRECTOR, NATIONAL FOUNDATION FOR MUSCULAR DYSTROPMY, INC., NEW YORK, N. Y.

Mrs. BERINI. Thank you, Mr. Chairman.

Mr. Chairman and committee members, I am Ruth York Berini, executive director of the National Foundation for Muscular Dystrophy. I have worked closely with the problem of muscular dystrophy for the last 5 years as an administrator and deem it a great privilege to appear before this committee. I represent a voluntary health foundation with a membership of many thousands. The membership is made up of victims of muscular dystrophy, parents of victims and friends.

This agency is dedicated to the encouragement and support of medical research into muscular dystrophy, and to the care of the patients. Even though muscular dystrophy is not a reportable disease, it is estimated that more than 100,000 people, 65,000 of whom are children between the ages of 3 and 13, are afflicted with this progressive medical enigma.

The formation of all volunteer groups such as the National Foundation for Mustcular Dystrophy points up the concern man feels toward the survival of mankind, and his deep responsibility toward his fellowman. In this great land of ours, we are free and economically able to organize various armies of volunteers who wish to join forces in an effort to prevent disease and replan daily routines in the interest of healthier living. It is on behalf of these thousands of members that the National Foundation comes to you to point up the urgent need for additional research facilities in order that all scientific research may be accelerated. Voluntary agencies, despite their efforts to initiate and support research for a specific disease, cannot at this particular time hope to make the substantial contributions necessary because of the limited facilities in relation to the basic research programs. The training of young investigators will eventually intensify creative research efforts in specific disease problems. Most voluntary health agencies do not have sufficient funds for construction of large research facilities and without the needed laboratories for the housing of investigative programs, there are not enough well equipped quarters available where research funds controlled by voluntary agencies could be wisely spent.

One of the most critical problems confronting the medical advisory boards of voluntary agencies, such as the National Foundation, is the fact that there are so few researchers presently being trained in basic science, who will be qualified and stimulated with new research ideas. With the enactment of this excellent piece of legislation, our Government will provide the tools for the scientific investigator to utilize the partnership of freedom and responsibility so vital in scientific advancement.

At this particular point, I should like to read a letter from Dr. Charles A. Janeway, physician in chief of the Children's Medical Center in Boston, Mass., professor of pediatrics at Harvard Medical School, and chairman of the Medical Advisory Board of the National Foundation for Muscular Dystorphy, which was sent to me regarding this proposed bill.

This Medical Research Act of 1955 adds to the sums already available for construction of research facilities which are urgently needed by non-Federal institutions where the majority of our able investigators are to be found frequently handicapped by inadequate facilities and insufficient space for their work. This act extends the authority of the Surgeon General of the United States Public Health Service to make grants for the construction of research facilities from categorical disease, limited fields to noncategorical fields as indicated by the phrases "for research in crippling and killing diseases such as" and "and for other purposes." These latter words are the most important in the bill for they begin to recognize a fact well known to medical scientists, that the most promising leads for the solution of medical problems frequently come from the most unexpected quarters. Thus release of the Surgeon General from the strict necessity of making grants in aid for research aimed at the cure of specific diseases, thereby allowing him to make them "for other purposes" is bound to accelerate the progress of research in the medical sciences as a whole and inevitably as a result in the diagnosis and treatment of specific diseases. This is particularly important in the case of a disease like muscular dystrophy, the nature and cause of which are completely unknown and, consequently, for which neither the means of prevention nor cure exist. The only hope of solution for this problem lies in the acceleration of research in such basic fields as biochemical genetics, protein chemistry, neurophysiology, and biophysics. This can best be accomplished by providing improved facilities for research to the basic medical scientific departments of the medical schools of this country. These departments by and large have small budgets, poor facilities, and hence offer less attractive careers to young investigators than the clinical departments and teaching hospitals, which have been the beneficiaries thus far of most Public Health Service grants, aimed at the cure of specific diseases.

This bill represents the beginning of the possibility of rectifying the serious defect in the Federal grant-in-aid program to medical research by making possible a better distribution of funds, in this case for construction of facilities between basic and applied research. We have been killing the goose that lays the golden egg by putting almost all support in research applied to specific diseases, rather than on basic research which provides the tools for study of specific diseases and which provides the stimulus and training for the medical scientist and clinical investigators of the future.

Accordingly, we should like to support this bill as representing the first step in a wise distribution of Federal aid for medical research.

(Signed) CHARLES A. JANEWAY, M. D.,
Chairman, Medical Advisory Board, National Foundation for Muscular Dystrophy.
BOSTON, MASS., *April 5, 1956.*

Those of us working with disease problems of a progressive nature feel a sense of urgency. We recognize, however, in spite of the race against time, there are no shortcuts in research. We realize that scientific investigation is costly, but we do feel that with sound research investments such as are being considered before this committee, our Nation stands a chance to provide the world with a healthier future. Moneys invested for the prevention of disease will eventually eliminate the millions spent yearly for custodial care, which is inevitably assumed by the taxpayer when an individual is stricken with a chronic or progressive disease.

You gentlemen in your humanitarian endeavors are to some extent custodians of funds which might well provide mankind with one of the most precious gifts, that of health. I believe this committee and its individual members will agree with me when I say that whatever efforts are expended in your responsibilities toward your fellowmen, none will have been too great if your energies aid science in finding the cause and cure for such crippling diseases as muscular dystrophy. With additional research facilities, some of the great unsolved medical problems will be closer to the understanding of future scientists.

Thank you, sir.

The CHAIRMAN. Mrs. Berini, may I compliment you on the very excellence of your statement, and also the very convincing way in which you presented your statement.

Mrs. BERINI. Thank you very much.

The CHAIRMAN. We appreciate it very much. There may be some questions. Do you have any questions, Mr. Hayworth?

Mr. HAYWORTH. No.

The CHAIRMAN. Mr. Heselton?

Mr. HESELTON. I simply want to join in the chairman's comments.

Mrs. BERINI. Thank you, sir.

The CHAIRMAN. Without objection, at this point in the record there will be inserted a cablegram from Dr. Paul White.

(The cablegram is as follows:)

KYOTO, JAPAN, *April 12, 1956.*

HON. J. PERCY PRIEST,
House of Representative, Washington, D. C.

Regret inability to testify; strongly urging passage Senate bill 849 authorizing construction funds. Please include in record my testimony about this need before Fogarty appropriations subcommittee, regards.

PAUL WHITE, M. D.

The CHAIRMAN. Dr. White is strongly in favor of the passage of this legislation. He refers specifically to S. 849. Let the record show at this point that Dr. White gave a complete statement very recently before the Fogarty subcommittee of the Appropriations Committee when it considered the appropriation for the Department of Health, Education, and Welfare. In that statement, which is found from page 2 to page 10 of the hearings before that committee, Dr. White strongly urged the Appropriations Committee to consider additional appropriations for research in practically every field in which the Public Health Service and other Government agencies engage in or in grants in aid.

The committee will stand adjourned until April 18, 1956, at 10 a. m.

(Thereupon at 12:10 p. m., a recess was taken until Wednesday, April 18, 1956, at 10 a. m.)

NON-FEDERAL HEALTH RESEARCH FACILITIES

WEDNESDAY, APRIL 18, 1956

HOUSE OF REPRESENTATIVES,
HEALTH AND SCIENCE SUBCOMMITTEE OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D. C.

The subcommittee met at 10 a. m., pursuant to recess, in room 1334, New House Office Building, Hon. J. Percy Priest (chairman) presiding.

The CHAIRMAN. The subcommittee will come to order.

We are meeting this morning for a continuation of the public hearings on the bill S. 849, a bill to provide for assistance for construction of non-Federal medical research institutions.

We are extremely happy to have before the subcommittee this morning Dr. Charles L. Schepens, who is director of the Retina Foundation of Boston, Mass.

I might say that our colleague in the House, the gentleman from Louisiana, Mr. Hébert, has been extremely interested in having testimony presented by Dr. Schepens. Those of us who know Mr. Hébert I think can understand his personal interest in this particular subject.

We are happy to have you, Doctor, and you may proceed with your statement.

STATEMENT OF DR. CHARLES L. SCHEPENS, DIRECTOR OF THE RETINA FOUNDATION, BOSTON, MASS.

Dr. SCHEPENS. Thank you, Mr. Chairman.

My name is Charles L. Schepens. I am an eye surgeon interested in surgery of a part of the eye which is called the retina, and I am the director of the retina service at the Massachusetts Eye and Ear Infirmary. Because of my interest in eye research, I also serve, without compensation, as the director of a group of research laboratories called the Retina Foundation. Both of these institutions are affiliated with the Harvard Medical School, on whose faculty I also serve. In the name of the staff of 28 who devote their time to eye research at the Retina Foundation, I urge your favorable consideration of bill S. 849.

My statement is divided into two parts: I will first give you my opinion on some of the fundamental ideas which govern medical research today; and, secondly, I will briefly tell you about some of my own experiences in money raising for eye research.

Medical research has progressed enormously in recent years. The heroic period of medical research is over and the time when marvelous

discoveries were made with poor equipment in a dusty attic is something of the past. Extraordinary developments in physics and chemistry have provided medical research with new and powerful "tools" with which to study the problems of living tissues. Such investigations require apparatus of ever-increasing complexity and men with specialized training not only in medicine, but also in physics and chemistry. Therefore, really productive medical research can no longer be done on a part-time basis by busy medical practitioners, as was the case years ago.

In its present stage of development, medical research is at the threshold of a great future. The potentials which it offers are breathtaking; they not only encompass the probable elimination of most of man's dread diseases, including perhaps as much as 70 percent of the blinding eye diseases, but they also hold promise of a marked increase in the average life span. Medical research is, therefore, of primary importance to the entire country because it inevitably affects the well-being, indeed the very life, of every citizen.

Common sense, therefore, indicates that medical research should be a multi-billion-dollar undertaking. As we all know, it is not. What is more, much of the private capital invested in this field is not invested in the most promising areas for the elimination of disease.

From a practical standpoint, one may consider three types of medical research: First, research which offers the prospects of financial returns and which is supported, for instance, by the drug industry. In this area of medical research, millions were spent to create remarkable laboratories, and hundreds of scientists are employed in these laboratories at good salaries and tempting fringe benefits which are not available to investigators in other areas of medical research.

The second type of medical research may be called clinical reseach; it involves the improvement of techniques for diagnosis and treatment of known diseases. This type of research is generally done in the hospital by practicing physicians. Its financial support is relatively easy to obtain from grateful and well-to-do patients. Its usefulness is obvious. However, this type of research is limited in scope.

It is my deep conviction that no great strides can be made in medicine unless strong support is given to a third type of medical research which is often called fundamental research.

This, gentlemen, is a very essential point. A clear understanding of it explains why, and how, the Federal Government should allocate funds for medical research.

In order to make myself better understood, I should like to compare the problems of medical research to that of the handling of the Second World War. Dread diseases can be compared to the Hitler regime and armies; the sufferers are the populations in the occupied countries; the scientists are the armies of the United States. Having lived under the German occupation, I can tell you that the suffering populations of Europe were naively hoping for immediate military action by the United States in early 1942. The clever Hitler propaganda machine exploited with success the fact that in 1941 and 1942 our country was only drawing up blueprints of the plants which were to produce tools for the manufacture of planes and tanks. After the fundamental work of reorganizing the industrial machine of the United States from the ground up was completed, the war was finally won in 1945 with much smaller losses than expected.

A situation comparable to that of World War II now exists in medical research. Patients and the public in general expect immediate action and quick results from medical research; therefore, they eagerly support clinical research. However, clinical research is not at present equipped to solve the problems of blindness, of cancer, and other dread diseases by a direct and frontal attack. We must first develop and utilize new scientific tools in order to increase our knowledge of basic processes which preside over the normal functioning of various organs. This preparatory step is indispensable if we are to wage war against disease successfully. Having done this, the study of incorrect functioning of organs becomes easier, making the job of prevention and cure of disease more hopeful. This type of research is often called fudamental research; it forms the backbone of all other medical research and is the only solid basis on which to build the medicine of tomorrow.

The tragedy is that, for the most part, industry supports research only where it sees the prospect of financial return and the public is inclined to support clinical research, but few understand and feel inclined to support fundamental research. This clearly indicates the urgency for financial assistance from Federal sources in support of fundamental medical research.

In present circumstances, additional up-to-date laboratory facilities are urgently needed almost everywhere. They are needed not only for the adequate performance of research work, but also for the indispensable training of more young men in the techniques of this vital work.

Having attempted to tell you why bill S. 849 is so necessary to medical research in general, I should like to give you some details about the difficulties which I have experienced in trying to organize and find support for fundamental eye research.

Six years ago I became convinced that many of my patients threatened with blindness could not be helped unless some of the chemical and physical processes connected with vision were better known. I had little difficulty in convincing well-trained scientists of the importance of this problem, and they enthusiastically accepted the challenge to create new laboratories for eye research which were called the Retina Foundation. As there was no space available either at the Massachusetts Eye and Ear Infirmary or at the Harvard Medical School for this project, we purchased a 5-floor tenement house in the west end slums of Boston, within a reasonable distance of the hospital. One of us personally borrowed the $6,000 needed for the downpayment on the house, and a former patient who was a building contractor remodeled the tenement to suit our purposes. The project got off the ground with a grant from the National Institute for Neurological Diseases and Blindness.

After 5 years of existence, the laboratories of the Retina Foundation operate with a budget of about $200,000 a year, approximately half of which is supplied by Federal agencies. In the absence of endowment funds, every penny spent must be raised each year. As the Director of the Retina Foundation, I well know the difficulties involved in raising approximately $100,000 each year outside of Federal agencies with the help of friends and former patients. As you can well imagine, this is an endless and time-consuming job, and

being an eye surgeon, I am not actually equipped for such a task. It is obvious to you, as it is to me, that in a way it is a waste of enery to have a surgeon spend 20 years acquiring skills and then spend 50 percent of his time raising money instead of operating. The reason I do this is because research means assistance to innumerable future patients, whereas the surgical skills I possess today can only help a few patients. There is, however, no choice: If we want this research to continue, the money must be raised.

Aside from the headache of raising the annual budget, there is the difficulty of finding research personnel. Even if the Retina Foundation were financially able to match salaries paid by industrial research laboratories, it would, nevertheless, be unable to give our staff the kind of economic security which exists in industry. As we have no capital, there is no guaranty that we will still be in operation in, say, 6 months. Therefore, we can only attract selfless and devoted scientists into fundamental eye research. This factor severely limits the development of eye research as well as other medical research.

Our biggest problem at the Retina Foundation is that of working space. Our laboratories extend over five floors in quarters so cramped and inadequate that considerable time and money had to be spent to make them usable. It is a help, when working at the Retina Foundation, to have either good legs or an excellent memory, because there is no elevator. To install an elevator in this old structure would be extremely expensive. Costly changes are inadvisable because the area where the Retina laboratories are located is part of a slum clearance program. We are, therefore, faced with the problem of relocation within a short period of time. This means that in addition to the burden of raising $100,000 a year for operational expenses, we should raise between $500,000 and $1 million for new and adequate quarters. From my experience I am of the opinion that this cannot be done without Federal aid, and therefore the life of our organization now depends on whether or not Federal funds will be made available for the construction of medical research laboratories.

If I have explained to you in some detail the particular situation of the Retina Foundation, it is because it is far from being an exceptional case. I hope this example illustrates to you the general pattern throughout the country in almost all fields of fundamental medical research.

If favorable action is taken on bill S. 849, it will be a tremendous step in the right direction. Our hope is that with Federal assistance, medical research will gradually assume the stature and importance that it should have, with eye research receiving about 20 times the support it now receives. It is in this way that the best interests of our people could be served.

Thank you for this opportunity to testify before you; I am indebted to Chairman Priest and to Mr. Layton for arranging to have me testify today instead of last week.

The CHAIRMAN. Doctor, we appreciate very much your statement. It is an interesting statement. I think it is one that is extremely logical, both from your viewpoint, and from the viewpoint of what I think the committee is attempting to do with this legislation.

I noted that you said—and I was interested in your statement—at the top of page 3, that the potentials, referring to the development of medical research, which it offers are breathtaking. I agree with you.

This encompasses the probable elimination of most of man's dread diseases, including perhaps as much as 70 percent of the blinding diseases. That to me is a very challenging prediction. I am sure, on the basis of your great knowledge of the subject of eye diseases and blindness, that you feel entirely safe in predicting that as much as 70 percent of the blindness can be eliminated.

Dr. SCHEPENS. I think that is a reasonable hope, Mr. Chairman. Only 19 percent of the present causes of blindness are either of hereditary or accidental cause. The balance, we have reason to believe, could be eliminated with further research and adequate training in specialized techniques.

The CHAIRMAN. Doctor, may I ask this question: Has there been any appreciable progress made in research dealing with those persons who are born blind? What is the status of research that might have been done to help that particular group?

Dr. SCHEPENS. This is a very difficult problem, of course. There are certain types of cases where a baby is born blind, and where we have made definite progress. One, for instance, is the case of the premature babies who tend to get a disease called retrolenthal fibroplasia. This disease used to be very prevalent as little as 5 or 6 years ago. Nowadays we have found that certain things that were done to a premature baby after he was born in order to keep him alive were actually hurting his eyes. By modifying these techniques, particularly by modifying the oxygen—the surplus of oxygen that we were giving those babies—we have been able to reduce the incidence of that disease very markedly.

Other cases are due to an infectious disease of the mother. For instance, it has been found in recent years that German measles, which is a very innocuous, infectious disease, if affecting a pregnant mother, the child has every chance to be born with very marked ear and eye defects. By knowing that, it has been possible to reduce the number of cases, because it is very important to keep these pregnant mothers away from possible contacts with German measles. So these are two examples where blindness from birth has been helped.

The CHAIRMAN. I suppose that I am perhaps just a little more personally interested in this testimony as of today, because yesterday I helped complete some arrangements for a visit to the Capitol here of a band consisting of 45 students from the Tennessee School for the Blind, which is in my congressional district. They will play a concert on the Capitol steps on Friday afternoon under the direction of a blind director, who is a very fine and sensitive musician. I am acquainted with that school. I have visited it. I know about its faculty. Of course, that is a teaching proposition, and that is not a research school at all, nor a treatment institution. It is a teaching school. But I was very happy to learn that arrangements had been completed for these 45 blind students to visit the Capitol and bring their band and play music here in the Capitol.

As I understand it, and you will see if I have this association correctly, you are a member of the faculty of Harvard. You are also director of the Retina Service in the Massachusetts Eye and Ear Infirmary. There is a close coordination, of course, but the Retina Foundation actually is independent, insofar as its organic organization is concerned either from Harvard or Massachusetts Eye and Ear Infirmary.

Dr. SCHEPENS. That is correct.

The CHAIRMAN. It is an independent foundation.

Dr. SCHEPENS. That is correct.

The CHAIRMAN. I wanted to be sure that I had that relationship clearly established.

I understand from other testimony and from conversations I have had that there is a very close working relationship all the way around between all three of the groups. Mr. Crockett was here last week, and he gave us some testimony about that close pattern of working relationships between various groups.

Are there some other questions of Dr. Schepens?

The CHAIRMAN. Are there some other questions of Dr. Schepens?

Mr. ROBERTS. Mr. Chairman, I have no questions, but I certainly share the chairman's sympathetic understanding and interest in this subject, because the Alabama School for the Blind is located in the district which I have the honor to represent, and I have been acquainted with the work with the blind to some degree.

I want to simply add my compliments to the doctor for his statement. I feel I really missed something in not hearing all of it.

I have wondered many times, Doctor—this is more in the nature of a comment than it is a question—if there is still a great deal of more or less hush-hush attitude about blindness. Is there still some of that among our people in that they don't want to bring it out in the open to find out really what can be done about it?

Dr. SCHEPENS. Not in Massachusetts. I think less and less elsewhere. The reason is that when a patient is dicharged blind from the hospital, he is immediately put in the hands of a social service worker specialized in the handling of that type of handicapped persons and oriented. Then, of course, there is a strong economic factor which will tempt them to go to the statehouse and bring in their certificate that they are blind, because they get abatements on income tax and certain other advantages.

The State rehabilitation center will help them get a job or get organized into learning a new profesion. So that nowadays I think that tendency has, if not entirely disappeared, been very much diminishing.

Mr. ROBERTS. I find that generally speaking these blind people make wonderful workers once they are trained. There is not the degree of absenteeism with them as there is with people who have their eyesight. I think that is true as you have experienced.

Dr. SCHEPENS. I think it is very true.

Mr. ROBERTS. That is all I have, Mr. Chairman.

The CHAIRMAN. Mr. Hayworth?

Mr. HAYWORTH. I share the feeling of the other members of the committee in regard to the significance of the statement you have made. I am beginning to wonder how the term "fundamental research" is used. I thought I knew before these hearings started. But now it seems to me as though you have a different meaning. Could you clear that up?

Dr. SCHEPENS. I think that is a well taken remark. The terms of applied versus fundamental or basic research are labels which are used with different connotations by different people or groups of people.

In this particular testimony I have assumed that fundamental research meant research for the increase of knowledge of very fundamental processes in organs or tissues, without any regard for its potential usefulness in some disease. In other words, we do this research to find out how this particuar tissue operates or works or gets nourished or does not get nourished in certain cases of diseases without any regard to whether or not that is really a useful finding as of today.

The reason why we call that fundamental is that if we could get together enough fundamental knowledge of how the human body actually functions, then the job of finding how it functions poorly, and the job of finding how we can correct it would be a relatively easy one because we would know what fails to click in a certain malfunction.

I think the basic idea in fundamental research is an entire disregard for immediate usefulness. It is just research which is for the increase of knowledge as to the normal or abnormal functioning of tissue or organs.

Mr. HAYWORTH. Is that the kind of research you do?

Dr. SCHEPENS. That is correct.

Mr. HAYWORTH. You do not deal with specific diseases?

Dr. SCHEPENS. We do at the hospital. In the laboratories we are 100 percent involved in the study of eye tissues without any regard for whatever application these studies may have in certain diseases. We just increase our capital of knowledge by doing those things.

Mr. HAYWORTH. Undoubtedly, the putting up of buildings is only the first step, is it not, in help along this line?

Dr. SCHEPENS. It is the first and also indispensable step. If we have no roof, we cannot start. But it is only one step.

Mr. HAYWORTH. There is also great need to see that these facilities are properly manned.

Dr. SCHEPENS. That is correct. Here we sort of face a vicious circle. In our own institution we have no room to train people. Our function normally should be to supply adequately trained research workers to other laboratories. We can't afford to do it, because there is no room.

Mr. HAYWORTH. Thank you, Doctor.

The CHAIRMAN. Doctor, back again to the question of funds that might be made available other than Federal funds that might be appropriated. In the field of heart and cancer there are two national associations that conduct fund raising campaigns each year rather extensively. There are one or two national associations for the blind. It has been my understanding—and I may not be correct in this—that most of their efforts are devoted toward rehabilitation and training programs.

I wonder if there is any voluntary organization that solicits annually or at intervals funds for research such as you are doing at the Retina Foundation?

Dr. SCHEPENS. No, there is not.

The CHAIRMAN. I had never heard of one, and I was just interested in knowing whether there was such a volunteer organization. In heart and cancer, the annual drives, I think, have been rather successful in raising funds. I was not sure whether there was one in this particular field or not.

Dr. SCHEPENS. The closest thing, Mr. Chairman, which we have in this field are two relatively small organizations. One is called the

National Society for the Prevention of Blindness. They spend, I understand, most of their money for protection measures in plants and industry. They spend a very small number of dollars—a few tens of thousands—in research.

The other is the National Council to Combat Blindness. They spend most of their money for research, but they don't raise but fifty or sixty thousand dollars a year, which is just a drop in the bucket.

The CHAIRMAN. Thank you, Doctor. I was interested in your statement that medical research has progressed beyond what you term the heroic age when great discoveries were made in some little attic laboratory by one devoted and concentrated researcher who spent most of his life and time in doing that sort of thing. I think you have aptly described the situation. Because of developments in physics and chemistry which, as you pointed out, have led to new tools of research, we have more or less left behind that heroic age of attic research.

Are there any other questions? If not, Doctor, we deeply appreciate your appearance before the subcommittee. As chairman of the subcommittee, I am extremely hopeful that we will be able with the legislation before us to bring out a bill that will help not only the Retina Foundation, but many other research facilities across the country.

We thank you for your presence here today, and your interest in this subject.

Dr. SCHEPENS. Thank you, Mr. Chairman.

The CHAIRMAN. Without objection, at this point in the record there will be inserted a letter from Dr. Glenn Gullickson, chairman of the committee on legislation, American Congress of Physical Medicine and Rehabilitation.

(The letter is as follows:)

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION,
Chicago, Ill., April 13, 1956.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

DEAR SIR: The American Congress of Physical Medicine and Rehabilitation wishes to express its endorsement of S. 849, the Medical Research Act of 1955.

Because the majority of the diseases cited in this bill are treated at some time by the procedures of physical medicine and rehabilitation, the members of the American Congress of Physical Medicine and Rehabilitation are cognizant of the challenge these diseases present to the medical profession and the extreme need for conquering these diseases. Research, both basic and applied, must be expanded and accelerated if these chronic and disabling diseases are to be conquered. However, this cannot be accomplished unless facilities are available for the necessary research into the causes and methods of treatment of these diseases. This bill is to be highly recommended since it will provide for a well-supported and well-balanced program of research which will do much to provide the knowledge necessary to prevent and relieve suffering and prolong life.

One provision of this excellent bill which the American Congress of Physical Medicine and Rehabilitation believes should not be included is the provision that schools of osteopathy are also to receive grants-in-aid for medical research. As applied to medicine, a cultist is one who in his practice follows a dogma, tenet, or principle based on the authority of its promulgator to the exclusion of demonstration and scientific experience. Osteopathy is cultist hearing since it is still contended, as originally enunciated by the founder of osteopathy, Andrew Still, that osteopathy is a complete and independent method of healing, representing not only a difference in the method of treating disease, but a fundamental difference in principle or conception of the causation of disease. It has long been recognized by the medical profession that manipulation may be of great benefit in certain conditions. However, osteopathy does not restrict its therapeutic claims to those conditions for which there is a scientific basis for manipulative

treatment but rather has attempted to erect a new theory of health and disease on imaginary pathology and unproven physiological hypotheses. Until the osteopaths state that they no longer adhere to their theories of the causation of disease and method of treatment, osteopathy must continue to be considered as a cult.

It is the position of the American Congress of Physical Medicine and Rehabilitation that the inclusion of schools of osteopathy in this bill would be detrimental to the expressed purpose of the bill to provide grants-in-aid to institutions competent to engage in research. The sectarian practitioners of osteopathy are not competent to engage in scientific medical research because their basic philosophy of the causation and treatment of disease is unscientific being based as it is upon dogma rather than verifiable scientific methods of research. Furthermore, the Federal Government should not be placed in the position of furthering cultist healing in the United Ctates to the eventual detriment of the health of its citizens.

The American Congress of Physical Medicine and Rehabilitation wishes to urge the Committee on Interstate and Foreign Commerce to act favorably on this most needed legislation after deleting from the bill the inclusion of schools of osteopathy.

Very truly yours,

GLENN GULLICKSON, JR., M. D.,
Chairman, Committee on Legislation;
University of Minnesota Medical Center, Minneapolis, Minn.

The CHAIRMAN. That is written on behalf of the American Congress on Physical Medicine and Rehabilitation.

The subcommittee will stand adjourned with the reminder that there is an executive session of the full committee today at 11 o'clock.

This closes the public hearings on S. 849.

(The following material was submitted for the record:)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., May 6, 1955.

Hon J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives,
Washington 25, D. C.

MY DEAR MR. CHAIRMAN: This is in reply to your recent letters requesting the views of the Bureau of the Budget on H. R. 3459, a bill to provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy, and for other purposes, and H. R. 4114, a similar bill.

The proposed legislation would amend the Public Health Service Act by adding a new title authorizing a 3-year program of grants to universities and other agencies to aid in the construction, remodeling, or equipping of research facilities. The bills would authorize appropriations of $30 million for each of the 3 years.

The report of the Department of Health, Education, and Welfare contains detailed comments on the provisions of the bills. We also wish to emphasize the importance of determining future needs for medical research facility construction in the context of the then prevailing budget policies and the competing needs not only for other research construction but also for the conduct of research and for the training of scientists in all areas. In this regard the possible implication that $90 million represents the appropriate level of Federal expenditures for construction of medical research facilities in the next 3 years is undesirable.

As the Department of Health, Education, and Welfare report points out, the Surgeon General now has broad authority for construction grants for medical research facilities without a statutory time limitation. In this regard it should be noted that grants totaling $22 million to assist in the construction of cancer and heart research facilities were made under this authority in fiscal years 1948, 1949, and 1950. These proposals, if amended in line with the suggestions of the Department of Health, Education, and Welfare, would substitute general grant authority for the present disease category grant authority and would provide for a statutory matching requirement.

Legislation providing for noncategorical grants and a statutory matching requirement would represent an improvement in existing authority. However, in view of present budget stringencies and the fact that authority exists to provide for such urgent needs as might arise, we would recommend that this legislation not be given favorable consideration at this time.

Sincerely yours,

DONALD R. BELCHER, *Assistant Director.*

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., July 27, 1955.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington 25, D. C.

MY DEAR MR. CHAIRMAN: This is in response to your letter of July 21, 1955, requesting the views of the Bureau of the Budget on S. 849, a bill to provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, tuberculosis, multiple sclerosis, epilepsy, systic fibrosis, and muscular dystropy, and for other purposes.

This bill, as passed by the Senate, is very similar to H. R. 3459 and H. R. 4114 on which we commented in our letter of May 6, 1955. For the most part, the differences between the Senate passed bill and the two House bills are of a technical nature.

S. 849 mentions additional diseases, i. e., tuberculosis, multiple sclerosis, epilepsy, and cystic fibrosis, not specifically identified in the House bills. It also clarifies section 702 by the addition of the word "public" in describing eligible institutions. Similarly, section 705 authorizes the same compensation and allowances for the proposed National Council on Medical Research Facilities as are available to the other advisory councils to the National Institutes of Health. S. 849 adds Puerto Rico, the Virgin Islands, Alaska, and Hawaii to regions designated in section 705 (c). S. 849 also eliminates consideration of grants made in prior years in the calculation of grants to the regions. Unlike H. R. 3459 and H. R. 4114 which require the Surgeon General to make all council approved grants and in the amount approved by council S. 849 authorizes such grants on the recommendation of the council and gives the Surgeon General some discretion in determining the appropriate amount. From an administrative point of view, the latter is to be preferred.

As was stated in our letter of May 6, 1955, and the Department of Health, Education, and Welfare's letter of April 27, 1955, this proposal would not add to the authority of the Surgeon General in this area but rather would consolidate the present categorical authority and provide statutory allocation and matching requirements. In this respect, the legislation represents an improvement in existing legislation. Your attention, however, is invited to the comments in the report of the Department of Health, Education, and Welfare on this bill relating to the proposed regions and the need for integration of the new grant provisions and existing grant authority with which we concur.

In summary, we agree that in several respects this legislation would result in an improvement in existing authority. However, in view of present budget stringencies and the fact that authority exists to provide for such urgent needs as might arise, we would recommend that this legislation not be given favorable consideration at this time.

Sincerely yours,

PERCY RAPPAPORT, *Assistant Director.*

TREASURY DEPARTMENT,
Washington, D. C., May 26, 1955.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

MY DEAR MR. CHAIRMAN: Reference is made to your letter requesting comments of the Treasury Department on H. R. 3459, a bill to provide assistance to certain non-Federal institutions for construction of facilities for research in

crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy, and for other purposes.

The bill would authorize a program of grants-in-aid to accredited and nonprofit universities and schools of medicine, dentistry, and osteopathy, hospitals, laboratories, and other nonprofit institutions for the purpose of defraying the cost of construction of facilities or the installation of equipment needed to conduct research into the causes of and possible cures for such diseases. There would be authorized to be appropriated for the fiscal year ending June 30, 1956, and the 2 succeeding fiscal years not to exceed $30 million for the purpose of making grants-in-aid for the purposes of the bill. A National Council on Medical Research Facilities would be created in the Public Health Service, of which the Surgeon General would be Chairman, to act upon applications for grants-in-aid.

The proposed legislation is not of primary concern to the Treasury Department and we are not in a position to comment on its general merits. However, since substantial expenditures would be involved, it is suggested that the proposed program should be most critically reviewed to determine whether it is necessary and justified in the light of the need for continued efforts to reduce Government outlay.

In the event the bill is enacted, it is assumed the intent is that disbursements would be accomplished through the central disbursing facilities, which have been established in the Treasury Department and which are now utilized in making disbursements for agencies of the Department of Health, Education, and Welfare as well as most of the remainder of the civilian agencies of the executive branch.

The Department has been advised by the Bureau of the Budget that there is no objection to the submission of this report to your committee.

Very truly yours,

M. B. FOLSOM,
Acting Secretary of the Treasury.

TREASURY DEPARTMENT,
Washington, D. C., May 26, 1955.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

MY DEAR MR. CHAIRMAN: Reference is made to your letter requesting comments of the Treasury Department on H. R. 4114, a bill to provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy, and for other purposes.

The bill would authorize a program of grants-in-aid to accredited and nonprofit universities and schools of medicine, dentistry, and osteopathy, hospitals, laboratories, and other nonprofit institutions for the purpose of defraying the cost of construction of facilities or the installation of equipment needed to conduct research into the causes of and possible cures for such diseases. There would be authorized to be appropriated for the fiscal year ending June 20, 1956, and 2 succeeding fiscal years not to exceed $30 million for the purpose making grants-in-aid for the purposes of the bill. A National Council on Medical Research Facilities would be created in the Public Health Service, of which the Surgeon General would be Chairman, to act upon applications for grants-in-aid.

The proposed legislation is not of primary concern to the Treasury Department and we are not in a position to comment on its general merits. However, since substantial expenditures would be involved, it is suggested that the proposed program should be most critically reviewed to determine whether it is necessary and justified in the light of the need for continued efforts to reduce Government outlay.

In the event the bill is enacted, it is assumed the intent is that disbursements would be accomplished through the central disbursing facilities, which have been established in the Treasury Department and which are now utilized in making disbursements for agencies of the Department of Health, Education, and Welfare as well as most of the remainder of the civilian agencies of the executive branch.

The Department has been advised by the Bureau of the Budget that there is no objection to the submission of this report to your committee.

Very truly yours,

M. B. FOLSOM,
Acting Secretary of the Treasury.

DEPARTMENT OF THE NAVY,
OFFICE OF THE JUDGE ADVOCATE GENERAL,
Washington 25, D. C., May 2, 1955.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives,
Washington 25, D. C.

MY DEAR MR. CHAIRMAN: Your request for comment on the bill H. R. 3459, to provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy, and for other purposes, has been assigned to this Department by the Secretary of Defense for the preparation of a report thereon expressing the views of the Department of Defense.

The purpose of this measure is to amend the Public Health Service Act to authorize construction of facilities through grants-in-aid to schools and universities engaged in research in the aforementioned diseases.

In view of the fact that none of these research functions are assigned primarily to the armed services, the Department of Defense makes no comment or recommendation with respect to the enactment of H. R. 3459.

This report has been coordinated within the Department of Defense in accordance with procedures prescribed by the Secretary of Defense.

The Department of the Navy has been advised by the Bureau of the Budget that there is no objection to the submission of this report on H. R. 3459 to the Congress.

For the Secretary of the Navy.
Sincerely yours,

IRA H. NUNN,
Rear Admiral, USN,
Judge Advocate General of the Navy.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
Washington D. C., April 27, 1955.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives.

DEAR MR. CHAIRMAN: This letter is in reply to your requests of February 5 and 21, 1955, for reports on H. R. 3459 and H. R. 4114, identical bills, to provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, and muscular dystrophy, and for other purposes.

The bills would amend the Public Health Service Act by adding a new title—Title VII—Medical Research Facilities—authorizing a 3-year program of Federal grants to universities and other nonprofit institutions to aid in the construction, remodeling, or equipping of research facilities. Annual appropriations of $30 million would be authorized for this purpose.

The Surgeon General now has authority to make such grants under the broad provisions of section 433 (a) of the Public Health Service Act, which reads in part (italics supplied): "Where an institute has been established under this part, the Surgeon General shall carry out the purposes of section 301 with respect to the conduct and support of research relating to the disease or diseases to which the activities of the institute are directed (*including grants-in-aid for drawing plans, erection of buildings, and acquisition of land therefor*), through such institute and in cooperation with the national advisory council established or expanded by reason of the establishment of such institute." Funds were appropriated in the fiscal years 1948, 1949, and 1950 for grants for cancer research facilities and for fiscal 1950, for heart research facilities. The total amount of these prior appropriations was $22 million.

The bills would not, therefore, add to the existing authority of the Surgeon General to make grants for the construction of research facilities. Rather, for a 3-year period the bills would provide a parallel authorization for such construction grants and spell out in the law certain requirements, standards, and procedures, some of which could be established administratively under existing

law and some of which could not. The significant differences between the present and the proposed authorizations are discussed separately below.

First, the proposed new title VII does not contemplate categorical grants through the various research institutes, as under the present authorization. Rather, it proposes a consolidated authorization covering facilities for research into any of the "crippling and killing diseases." Accordingly, the bills would create a new National Council on Medical Research Facilities to review and recommend action on all applications for construction grants. This new council would be composed of one representative of each of the component institutes of the National Institutes of Health; one additional member experienced in the planning, construction, or administration of medical research facilities; and the Surgeon General, who would serve as Chairman of the Council. We believe this consolidated authority, with a single reviewing Council, is preferable to the present categorical authorization in section 433 (a) of the Public Health Service Act.

Second, the proposed new section 705 (c) would divide the States into four statutory regions and would require that, with certain modifications, research construction grants under the proposed new title to any region, when added to prior research construction grants made by the Surgeon General in the past, "shall be approximately equal to the corresponding sum for each of the other regions." Although we are in agreement with the principle that geographical balance is one of several criteria to be considered in the administration of Federal grant appropriations, we believe that this provision of the bills, as presently worded, is entirely too rigid and might seriously hamper the Surgeon General and the Council in achieving the optimum distribution of grant funds. We would not object, however, to inclusion of a statutory requirement that geographical balance be included as one of the factors to be considered in the review of applications for grants.

Third, a grant made pursuant to the proposed title VII could not exceed one-half the construction cost of the research facility. Under the present authorization there is no statutory limitation of the proportion of construction costs that may be covered by the Federal grant. We believe that some statutory matching requirement is desirable for any Federal construction grant program. We have some reservations, however, as to the desirability of a flat 50 percent limitation. It might be preferable to permit grants up to two-thirds of construction costs, as under the Hospital Survey and Construction Act, particularly if geographical balance of facilities is to be a major objective of such grants. It should also be noted that the term "construction" is so defined in the bills as to exclude the cost of acquisition of land, which may be included under the present authorization. We believe the limited definition in the bills is preferable to the existing provision in this respect.

Fourth, under the provisions of the proposed section 706 (b), the Surgeon General "shall make a grant-in-aid" if the Council approves the application. This language would appear to leave no discretion with the Surgeon General. Under the present authorization, construction grants can be made by the Surgeon General "in cooperation with the national advisory council," and the present provision relating to research project grants, while requiring the prior recommendations of the Council, still leaves the final determination to the Surgeon General. We believe that this provision of H. R. 3459 and H. R. 4114 should be amended so as to authorize, but not require, the Surgeon General to make grants recommended by the Council.

Finally, the construction grant authorization proposed in H. R. 3459 and H. R. 4114 includes a statutory time limit of 3 years and specific appropriations authorizations of $30 million annually. The present authority is a continuing authorization with no specified appropriations ceiling. In our opinion such statutory limitations or specifications are not necessary or desirable. Appropriations for Federal aid to medical research must be considered each year on the basis of the general Federal budgetary situation and of the relative importance of various health needs. In particular, the need for research facilities must be balanced against other research needs. In our opinion, continued Federal assistance in the form of project grants and research fellowships is the paramount medical research need at this time. In the light of all the relative priorities of need in the health field in general, and in the field of medical research in particular, we are unable to concur in the implication of H. R. 3459 and H. R. 4114 that annual appropriations of $30 million for construction grants alone are necessarily justifiable for the next 3 fiscal years. We would recommend that this provision

of the bills be amended so as to provide a continuing authorization with no annual appropriation figure specified.

In summary, we are in agreement with certain provisions of the bills which clarify and improve existing authority for the construction of research facilities. However, we strongly recommend amendments to authorize the Surgeon General to make the grants upon recommendation of the Council, and amendments to provide a continuing consolidated authorization, without specification of annual appropriations and without a rigid formula for geographical equalization grants. If the bills were so amended, we would further recommend that they include provisions rescinding the present research construction grant authorization contained in section 433 (a) of the Public Health Service Act.

The Bureau of the Budget advises that it perceives no objection to the submission of this report to your committee.

Sincerely yours,

ROSWELL B. PERKINS, *Acting Secretary.*

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
Washington, July 27, 1955.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives.

DEAR MR. CHAIRMAN: This letter is in response to your request of July 21, 1955, for a report on S. 849, a bill to provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, tuberculosis, multiple sclerosis, epilepsy, cystic fibrosis, and muscular dystrophy, and for other purposes.

S. 849, as introduced, was identical with H. R. 3459 and H. R. 4114, with respect to which we submitted a report to your committee on April 27, 1955. Therefore, our comments in this letter will be directed toward the Senate amendments to the original bill and the relationship of these amendments to the views expressed by this Department in our report on H. R. 3459 and H. R. 4114.

We concluded our report on these House bills as follows:

"In summary, we are in agreement with certain provisions of the bills which clarify and improve existing authority for the construction of research facilities. However, we strongly recommend amendments to authorize the Surgeon General to make the grants upon recommendation of the Council, and amendments to provide a continuing consolidated authorization, without specification of annual appropriations and without a rigid formula for geographical equalization grants. If the bills were so amended, we would further recommend that they include provisions rescinding the present research-construction-grant authorization contained in section 433 (a) of the Public Health Service Act."

As passed by the Senate, S. 849 includes our recommended amendment relating to the discretionary authority of the Surgeon General in the approval of grant applications.

Another amendment modifies the original provision for regional equalization of grants by eliminating grants made in prior fiscal years from the calculation of the total grants to any region. We believe that the amended provision is an improvement over the original provision, but we still do not favor the formula approach to regional equalization because it would be undesirably rigid. Apart from the substantive principle involved, the requirement that "the sum of the grants made to any region shall be approximately equal to the corresponding sums for each of the other regions" might present administrative difficulties. A more workable arrangement, assuming some statutory formula for equalization, would be to allot each appropriation equally (within the 20 percent leeway already allowed in the bill) among the four regions, so that grants to applicants in each region may be processed independently of applications and grants in other regions. This would avoid any possibility that lack of sufficient approvable applications from research institutions in one region, or delay in their submission or approval, might limit the total amount of grants to institutions in other regions, or delay the making of grants on approved applications.

Among the other Senate amendments are: The extension of eligibility to applicants in the several Territories, the provision of an alternate for each mem-

ber of the Council, and the inclusion of a specific provision for the compensation and allowances of Council members. These amendments are all acceptable to this Department.

Although the bill as passed by the Senate is improved in several aspects by Senate amendments, no provision has been made for the integration of the new grant provisions with the present grant provisions of the Public Health Service Act. We would therefore reiterate our recommendation for further amendments to provide a continuing consolidated authorization, without specification of annual appropriations and without a rigid formula for the equalization of grants among geographical regions.

We would be glad to submit draft language to carry out the above suggestions, as well as to perfect certain other provisions in the bill, should the committee desire us to do so.

The Bureau of the Budget advises that it perceives no objection to the submission of this report to your committee.

Sincerely,

OVETA CULP HOBBY, *Secretary.*

DEPARTMENT OF LABOR,
OFFICE OF THE SECRETARY,
Washington, April 10, 1956.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

DEAR CONGRESSMAN PRIEST: This is with further reference to your request for my comments on S. 849, a bill to provide assistance to certain non-Federal institutions for construction of facilities for research in crippling and killing diseases such as cancer, heart disease, poliomyelitis, nervous disorders, mental illness, arthritis and rheumatism, blindness, cerebral palsy, tuberculosis, multiple sclerosis, epilepsy, cystic fibrosis, and muscular dystrophy, and for other purposes.

The bill would add a new title to the Public Health Service Act authorizing grants-in-aid to accredited public and other nonprofit hospitals, schools, and institutions for construction of research facilities and for purchase and installation of equipment.

The general objectives of this legislation, to provide assistance to local research in the causes and cures of crippling and killing diseases, are commendable. I prefer to leave comment, however, on the specific provisions of this bill to the Department of Health, Education, and Welfare, the agency most directly concerned with the administration of the program.

I note, however, that this bill contains no provision affording labor-standards protection to the workers who will be employed in construction of health and educational facilities which under the terms of the bill would be financed by Federal grants. Labor standards for construction financed with this kind of assistance are now contained in title VI of the Public Health Service Act, relating to construction of hospital and medical facilities. The construction of health facilities under direct Federal contract is, of course, subject to the prevailing wage standards of the Davis-Bacon Act and to the Federal 8-hour laws requiring the payment to laborers and mechanics of not less than time and one-half for work in excess of 8 hours a day. Similar provisions are contained in title III of the Defense Housing and Community Facilities Act of 1951, pertaining to construction financed in whole or in part by Federal funds. Duties with respect to these and related labor-standards provisions are given to the Secretary of Labor by Reorganization Plan No. 14 of 1950 and section 2 of the Copeland Act, as amended.

As a matter of principle, this Department would favor the inclusion in this bill of provisions which would secure laborers and mechanics the payment of not less than the prevailing wage rates in the locality as determined by the Secretary of Labor in accordance with the Davis-Bacon Act and not less than time and one-half for overtime work in excess of 8 hours in a day or 40 hours in a week, together with appropriate provisions for application of Reorganization Plan 14 and Copeland Act authority. Your committee may wish to consider an amendment along these lines. Suggested language that might be suitable for the purpose is enclosed. You will note that its inclusion of a 40-hour weekly limit on work at straight-time pay, which is consistent with the Fair

Labor Standards Act and the Walsh-Healey Public Contracts Act, would prevent the practice, which some contractors have adopted under the existing 8-hour laws, of working employees a 56-hour week of seven 8-hour days without overtime payment.

The Bureau of the Budget advises that it has no objection to the submission of this report.

Sincerely yours,

JAMES P. MITCHELL, *Secretary of Labor.*

SUGGESTED LANGUAGE FOR AMENDMENT OF S. 849

LABOR STANDARDS

(a) All laborers and mechanics employed by contractors or subcontractors in the performance of construction work financed with the assistance of any grant of Federal funds under the provisions of this act shall be paid wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor in accordance with the Davis-Bacon Act, as amended (40 U. S. C. 276a–276a–5), and every such employee shall receive compensation at a rate not less than one and one-half times his basic rate of pay for all hours worked in any workweek in excess of eight hours in any workday or forty hours in the workweek, as the case may be. The Surgeon General shall not approve such grant of Federal funds without first obtaining adequate assurance that these labor standards will be maintained upon the construction work.

(b) The Secretary of Labor shall have, with respect to the labor standards specified in subsection (a) of this section, the authority and functions set forth in Reorganization Plan Numbered 14 of 1950 (15 F. R. 3176, 64 Stat. 1267, 5 U. S. C. 133Z–15) and section 2 of the Act of June 13, 1934, as amended (48 Stat. 948, as amended; 40 U. S. C. 276c).

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
OFFICE OF THE MAJORITY LEADER,
Washington, D. C., May 2, 1956.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

DEAR PERCY: I am enclosing a letter which I have received from a very outstanding doctor in Greater Boston, Dr. Freddy Homburger, director of Tufts University School of Medicine (cancer research and cancer control unit) who, as you will note, writes me in favor of S. 849. This bill has passed the Senate and is now before your committee. It is a most deserving bill, the passage of which could make a marked contribution towards a solution of the human illnesses mentioned therein.

I sincerely hope that your committee, in the near future, will report this bill out favorably. I will appreciate it if you will advise me as to the present status of the bill in your committee, and the chances of its consideration. If and when hearings are held, I will further appreciate it if you will insert Dr. Homburger's letter in the hearings, and also record me in favor of the bill.

With kind personal regards, I am

Sincerely yours,

J. W. MCCORMACK.

TUFTS UNIVERSITY SCHOOL OF MEDICINE,
Boston, Mass., April 18, 1956.

Congressman JOHN R. MCCORMACK,
House Majority Leader,
Capitol, Washington, D. C.

DEAR CONGRESSMAN MCCORMACK: I enjoyed very much seeing you again, if only for a short moment, and I am pleased that you expressed interest in the various pending bills which intend to provide money for the construction of medical research facilities.

I am particularly referring to S. 849 which is at present being reviewed in committee. During my visit in Washington I realized that most of the intended purposes of several pending bills which provide funds for construction of research facilities could be accomplished by rapid passage of S. 849 and possibly including amendments providing also for long-term support of teaching and research. I also learned that every major national medical organization is supporting this bill. I hope that it will be possible for you to use your influence as House majority leader and your superb skill in handling such matters so that S. 849 will become law soon enough for the money which it provides to be appropriated.

The reason for my interest in this matter is very simple. We at Tufts University School of Medicine and the Holy Ghost Hospital have been developing cancer research and medical research on problems of the aged at a rapid pace and for the benefit of our patients and the community in general. For years we have been laboring under severe restrictions of space and insufficient funds because we depend heavily upon Federal support in these matters. I have been instructed by the Mother Superior of the Holy Ghost Hospital to inquire from the United States Public Health Service regarding the availability of construction funds for research laboratories, which could be matched by private funds available to the hospital. Tufts University School of Medicine also has applied for construction funds for various research purposes. However, since 1948 no research construction money has been available, and there is by now a shameful inadequacy of laboratories throughout the country, but especially in Massachusetts where so much of medical research is being done.

I know, therefore, that you share our urgent interest in this matter and hope that you will be able to help the advancement of medical research through your legislative power and skill.

Sincerely yours,

FREDDY HOMBURGER, M. D.

STATEMENT OF DR. FRANCIS M. FORSTER, DEAN AND PROFESSOR OF NEUROLOGY, GEORGETOWN UNIVERSITY MEDICAL SCHOOL

I am Dr. Francis M. Forster, dean and professor of neurology at Georgetown University Medical School, the president-elect of the American Academy of Neurology, and a member of the National Committee for Research in Neurological Disorders. I am testifying in favor of bill S. 849, the act to provide assistance for construction of facilities for research in crippling and killing diseases.

The primary functions of medical schools are teaching of undergraduate and graduate students in medical programs, the development of research, and the rendering of service in the community. The research is one of the most important facets of the activities of a medical school because neither service to the community, nor teaching, can be at the top level of efficiency unless the institution is engaged in research. Research, however, is the most difficult item to support from the university budget. This is because the medical schools and hospitals already are drains on the university budgets from the teaching and service standpoints, without adding the full impact of the research requirements to this already growing deficit. Moreover, it is most difficult for a university to see its way clear to expending its capital assets for construction for research and this compounds the difficulties.

The present supremacy of American medicine is due in large part to the development of keen investigative interest on the part of the faculties and, indeed, even the medical students in this country. The supremacy of medical education here is quite obvious, for the previously established pattern of American students going abroad to complete their training has now been reversed and it is the foreign graduates who are coming to our shores to obtain their final stages in maturation and education. This is due to the impact of research in our medical schools.

In testifying in favor of this bill, I would like to state examples in my own field of competence, that is the field of neurology. Neurology is a recently reorganized field and there have been many great advances made. An example of this is the advances made in the treatment of epilepsy. In 1936 there were only 2 drugs available for the treatment of epilepsy, both far from being entirely satisfactory and neither of them much help in the treatment of petit mal epilepsy that occurs in children. Since 1937, the beginning period of the re-

organization of neurology, there have been at least 10 drugs evolved which are outstanding for use in the treatment of epilepsy. It is now possible to carry 85 to 90 percent of the patients with epilepsy, free of seizures and thus rehabilitating them for their life's work. This is still not ideal because some patients are uncontrolled and, therefore, the advance in research must continue.

On the other hand, there are many areas in the neurological field, where we are still working in the dark with regard to treatment. Examples of this are in multiple sclerosis and in the complete treatment of the patient with cerebral vascular accidents—the so-called strokes. The mention of these few indicate the great need for research in the many aspects of neurology.

When there is a need for research, there are two factors which are necessary, the men and the environment. In regard to the men who undertake research, great advances have been made and these have been made possible largely throught the wisdom and generosity of Congress. In my own field of neurology, Congress established the training grants in neurology and the first of these was activated on July 1, 1953. As a result of the programs activated under the appropriations of Congress for the training of neurologists, there have been 81 new faculty members added in the medical school in the field of neurology. In addition to this there has been a sharp increase in the number of resident physicians entering this field. The young man going into neurology today is not interested in merely the practice of his field, but is also well inculcated with an appreciation and desire to enter into research. We still do not have enough men available for research but at least a good beginning has been made and almost entirely because of the wisdom and generosity of Congress.

The second factor in research therefore is the environment. In most of the institutions with departments of neurology, they have been organized or reorganized and the manpower has been increased, but there is an acute shortage of space. If I might point to my own school, Georgetown University, the department of neurology was established at the hospital long after the hospital and the medical school were built and therefore, has operated in makeshift space. We have one laboratory which is borrowed from another department and carried out in this laboratory are the basic investigations in the function or physiology in the nervous system, the pathology of the nervous system, and some of our studies in the biochemistry of the nervous system. The biochemists are tripping over the wires of the equipment used by the neurophysiologists. While it is good to have research workers in continuous fields rubbing shoulders for the dissemination of ideas, this can be carried to a point of decreased return. Ours is not an isolated example but merely points out the situation that exists in most medical schools.

My colleagues of the American Academy of Neurology and my colleagues on the Joint Committee for the National Committee on Research for Neurological Disorders, all believe this is a very wise and farsighted bill that Congress is considering. We believe that America can only hold its preeminence in the medical field by further investigations and further work, and request that Congress continue its support for research for the development, not only of research, but of men, and to give those men in research the proper environment for the maximum efficiency of their activities.

STATEMENT OF DR. C. D. SWOPE, CHAIRMAN, DEPARTMENT OF PUBLIC RELATIONS, AMERICAN OSTEOPATHIC ASSOCIATION

S. 859 expressly authorizes Federal grants to aid in the construction of non-Federal research facilities to schools of medicine, dentistry, and osteopathy, and other nonprofit institutions willing and competent to undertake needed research projects.

Inasmuch as there is an essential interrelationship between the research and teaching missions of schools providing basic and advanced training of physicians, dentists, and public health specialists, we urge expansion of the pending bill to include assistance for construction of training facilities, in substance as provided in H. R. 5940 as favorably reported by this committee during the 81st Congress, also as recommended in the President's Health Message of January 26, 1956 translated in the form of H. R. 9013 and H. R. 9014 now pending before the committee, which expressly authorize Federal grants-in-aid for construction of new or improved facilities for research or teaching to schools of medicine, osteopathy, public health, and dentistry, and other nonprofit institutions, and

establish a National Advisory Council on Medical Research and Teaching Facilities to be selected in part "from among leaders in the fields of medical, osteopathatic, dental, or public health research or education."

We share the hope expressed by the chairman of this subcommittee in his opening statement that this legislation as finally enacted will "stimulate contributions from private sources and from State and local governments for the construction of non-Federal research and training facilities."

The American Osteopathic Association allocates funds to the limit of its ability, some $60,000 annually in recent years, for research in osteopathic institutions. The chairman of the Bureau of Research of the American Osteopathic Association in his annual report of July 1954, states: "One of the major problems in establishing research programs in osteopathic institutions is lack of space that can be assigned for for this purpose. There is also the problem of accumulation of the basic equipment to convert such space, when found, into a research laboratory."

According to a tabulation made by the Department of Health, Education, and Welfare, based on research construction needs submitted by applicants to the National Institutes of Health, January 1954, the osteopathic colleges require an average of 26,000 additional square feet per college for research facilities for which funds are not available. The tabulation, which was incorporated in the hearings on this bill before the Senate Committee, included research construction needs of medical, osteopathic, and dental colleges.

Testifying before the Subcommittee on Health and Science of the House Committee on Interstate and Foreign Commerce, with reference to the medical educational facilities bill, H. R. 4743, in connection with which he offered amendments which we reiterate, on June 17, 1955, Dr. J. S. Denslow, director of research affairs, Kirksville College of Osteopathy and Surgery, and secretary-treasurer of the American Association of Osteopathic Colleges, pointed out that a survey of the demonstrable needs of the 6 osteopathic colleges for additional teaching space, conducted in November of 1954, showed needs in excess of 182,500 square feet for which funds were not available to proceed with the construction.

There are six colleges of osteopathy and surgery, all nonprofit, tax exempt, approved by the American Osteopathic Association, the Veterans' Administration, and the Public Health Service:

Chicago College of Osteopathy, Chicago, Ill., established 1902.
College of Osteopathic Physicians and Surgeons, Los Angeles, Calif., established July 14, 1896.
Des Moines Still College of Osteopathy and Surgery, Des Moines, Iowa, established June 8, 1898.
Kansas City College of Osteopathy and Surgery, Kansas City, Mo., established 1916.
Kirksville College of Osteopathy and Surgery, Kirksville, Mo., established 1892.
Philadelphia College of Osteopathy, Philadelphia, Pa., established January 24, 1899.

In the fall of 1955, 1,883 students were enrolled in the osteopathic colleges. The freshman class (520) received preprofessional training in colleges and univerisities in 40 States, Hawaii, and the District of Columbia.

These matriculants had preprofessional college training as follows: 75 percent had baccalaureate or advanced degrees, and the remainder had 3 or 3-plus years. A minimum of 3 years of preprofessional training is required. The professional course is 4 years. There were 459 graduates in 1955. Most graduates take 1 or more years of intern training. Eighty-seven hospitals are approved for intern training by the American Osteopathic Association. Following internship, an increasing number take resident training available in 44 approved resident training hospitals in the specialties such as surgery, obstetrics, radiology, neuropsychiatry, and so forth. After resident training and upon further qualification and examination osteopathic graduates are certified by the respective American osteopathic specialty boards.

Boards of specialty certification include: American Osteopathic Board of Dermatology and Syphilology, American Osteopathic Board of Internal Medicine, American Osteopathic Board of Neurology and Psychiatry, American Osteopathic Board of Obstetrics and Gynecology, American Osteopathic Board of Ophthalmology and Otorhinolaryngology, American Osteopathic Board of Pathology, American Osteopathic Board of Pediatrics, American Osteopathic Board of

Physical Medicine and Rehabilitation, American Osteopathic Board of Proctology, American Osteopathic Board of Radiology, and the American Osteopathic Board of Surgery.

The average tuition is $700 a year. The student in paying this yearly tuition of $700 is paying less than one-third of the actual cost of his education. The average osteopathic college spends approximately $2,400 per year per student in conducting the type of educational program which the profession has insisted upon.

The difference between undergraduate tuition and fees and the school budgets is made up as nearly as possible by indebtedness, hospital, clinic and graduate course fees, grants, such as cancer and heart teaching grants from the National Institutes of Health, and gifts. In 1943, a continuing osteopathic progress fund (nonprofit tax exempt) was established through which the individual members of the profession and others make annual contributions to the colleges. These contributions total in excess of $5 million to date.

The cancer and heart teaching grants, which the osteopathic colleges receive from the National Cancer Institute and the National Heart Institute, help tremendously to emphasize the impact of cancer and heart disease and the methods of detecting and dealing with them, and also to kindle and channel the investigative interest of students who have aptitude for scientific research.

Stimulation of interest and discovery of aptitude for research need to be followed by training in scientific methods. Such training requires not only qualified supervision, but adequate laboratory space and equipment.

Research carried on at the osteopathic colleges has been made possible by research grants from the American Osteopathic Association, the Public Health Service, the Bureau of Naval Research, various trust funds, and individual contributions.

Participation in the program under the pending bill, expanded to include construction of training facilities, would greatly aid the osteopathic colleges to improve and extend their research and teaching facilities. We urge the enactment of the bill in terms permitting such participation.

(Thereupon at 10:45 a. m., the hearings were concluded.)

×